LECTURES

ON

ET AND REGIMEN:

BEING

A SYSTEMATIC INQUIRY

THE MOST RATIONAL MEANS OF PRESERVING HEALTH AND PROLONGING LIFE:

TOGETHER WITH

IOLOGICAL AND CHEMICAL EXPLANATIONS,

CALCULATED CHIEFLY

FOR THE USE OF FAMILIES,

DER TO BANISH THE PREVAILING ABUSES AND PREJUDICES IN MEDICINE.

BY A. F. M. WILLICH, M. D.

Qui ſtomachum regem totius corporis eſſe
Contendunt, vera niti ratione videntur:
Hujus enim validus tenor firmat omnia membra;
At contrà ejuſdem franguntur cuncta dolore.

SERENUS SAMMONICUS,
De Medicina Præcepta ſaluberrima.

VOL. I.

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orrected and improved, with conſiderable Additions.

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THIS WORK

IS DEDICATED,

TO THOSE MOTHERS AND GUARDIANS OF FAMILIES,

WHOSE
GREATEST PRIDE AND HAPPINESS IT IS,
TO REAR
HEALTHY AND VIRTUOUS CHILDREN;

AND

TO THOSE FRIENDS OF SOCIETY AND THEMSELVES,

WHO ARE SOLICITOUS
TO PRESERVE THEIR HEALTH,
AND TO ADOPT
THE PARENTAL HINTS OF NATURE,
RATHER THAN SUBMIT TO
THE PALLIATIVE RELIEF OF ART.

ADVERTISEMENT
TO THE *BOSTON* EDITION.

TO prevent diſeaſe by ſo ſimple and intelligible an expedient, as a due attention to *Diet* and *Regimen*, ſhould become the moſt univerſal as it ſurely is the moſt rational purſuit of every man who values health, and is deſirous of prolonging life. A judicious book, calculated to aſſiſt him in that purſuit, is therefore entitled to preeminence in every man's library.

Books are not wanting which profeſs to teach us how to become our own phyſicians, when we are ſick :—Indeed were we to credit implicitly the numerous *noſtrums* and *ſpecifics*, ſo ſtrongly commended by many writers on medical ſubjects, we might almoſt venture to queſtion the ordinary principle of human infirmity, or man's mortality. Authors of that deſcription have given great encouragement to art, by diſcountenancing the ſuggeſtions of nature; and have furniſhed the means of creating diſeaſes, inſtead of aſſiſting in the purpoſe of *cure* or *prevention*. Before the preſent, no author had expreſsly undertaken to inſtruct mankind in the faculty of ſhunning diſeaſe by means ſo ſimple as the regulation of Diet. This omiſſion has probably been owing to an opinion, that the ſubject is too trivial and ordinary to authorize

grave diſcuſſion, and that a man muſt firſt be acquainted minutely with the animal functions, before he ſhould hazard an attempt to preſerve them in order, or to rectify their derangements. The fallacy of ſuch an opinion is moſt clearly expoſed in the preſent production; and we may here be convinced, that the beſt and moſt effectual means of prolonging life, and ſecuring the bleſſings of health, are not only comprehenſible, without the aid of great inveſtigation, but practicable without the neceſſity of great inconvenience or reſtraint. The rules contained in the preſent volumes are deduced from the moſt ſimple and obvious view of the ſubject; and although they may exhibit nothing very myſterious or abſtruſe, we preſume they are not therefore entitled to leſs credit or attention. In theſe ſentiments, we would not be conſidered to doubt the profundity of the healing art; we only admire the ſimplicity of our author's plan, for rendering the intervention of that art ſuperfluous and unneceſſary.

It is true, indeed, the brute creation have no factitious guide to direct them in the performance of their animal office; but nature, their only monitor, hath long ſince ceaſed to be the guide of man. She forſook him when he abandoned her, to purſue the enjoyments of ſociety, on the road of exceſs and intemperance.

In the preſent highly improved ſtate of ſociety, when the efforts of talents are on the ſtretch, to diſcover new pleaſures, new

gratifications, it is not surprising that the line of sober enjoyment should be overlooked.* Custom fortifies itself by appetites; it therefore requires no small degree of sagacity to discern, and firmness to abstain from those excesses, where reason, already seduced by the allurement of new dainties, readily yields to the fascinating form in which they are presented to our senses. If it be an object of magnitude to correct the present perverted taste of mankind, and to reveſt pain with the power of self-defence, against a numerous train of mere artificial maladies, then may we venture to declare, that this work is justly entitled to more encomiums than we have faculty

* Much time, learning, and talent has been bestowed on the researches, made into the causes of the late epidemic or endemic, or contagious fever, which has for a few years past desolated the capitals of the United States. Hypotheses were broached, opinions formed, parties raised, but no cause found. What would the American faculty think, if, after so many inquiries, this mighty cause should be found resolvable in the *vicious diet* and *incautious regimen* peculiar to the Americans? Such are however the grounds of a very judicious treatise, written in French, and sent to the President of the United States, that he might render it public. The author, who has resided several years in America, paints in strong colours the abuses of *American diet*, compares it minutely with the mode of living of other nations, especially those who live in the same latitudes, attributes all the autumnal diseases of the Americans, and namely their yellow fever, to that cause; and is surprised that it does not produce still greater and more frequent evils, in the capitals of America, where the abuse cannot be exceeded. Nor is the conclusion rash, when we find all foreigners, who visit this country, Frenchmen, Germans, and even Englishmen, exclaiming against *our copious* and *everlasting* dinners. Not that feasts and sumptuous entertainments are unknown in Europe, at which the rules of sobriety are trampled upon, but they are given on particular occasions only, whereas the ordinary of an American is an every day feast. Americans who have travelled abroad, know the truth of this observation. To indulge in a party, where excess must follow, once or twice a month, may hurt us; but to overload the stomach every day, must kill us in a very short time.

to beſtow. Our Author, unlike many others of his profeſſion, ſeems to have been leſs deſirous to diſcover the occult properties of the various articles of ſuſtenance, than to determine their effects, when applied to the human conſtitution.

It is, moreover, a circumſtance, adding not a little to the value and utility of theſe volumes, that they are furniſhed with a minute and copious index, referring particularly to almoſt every ſubſtance, vegetable or animal, in uſe among men, ſo that the reader may diſcover, almoſt by a ſingle glance, the beſt rules by which to control his appetite, and the preciſe limits within which the inclination of his ſenſes may be indulged with impunity.

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Southwick John, do.
Secomb Ebenezer, do.
Sweetſer Samuel, do.
Smith Joſeph, do.
Stevens Nathan, do.
Sanderſon Elijah, do.
Stuart Henry H. do.
Swett Jacob, Newburyport
Smith Michael, do.
Savory Ebenezer, do.
Swett Edmund, do.
Stanwood Abel, do.
Steele Ebenezer, do.
Stanwood Nathaniel, do.
Sawyer Jeremiah, do.
Spalding Oliver, do.
Swett William, Ameſbury
Spalding Lyman, Portſm'th
Sheaf James, do.
Stanwood William, do.
Stavers John, do.
Stanwood William, do.
Shapley Reuben, do.
Shapley John, do.
Sherburne Jonathan, do.
Sherburne John Samuel, do.
Sezey Mark, do.
Simes Thomas, do.
Sweetſer Iſaac, Charleſtown
Sabels Thomas, Medford
Symmes Daniel, do.

T.

Thayer Stephen, Salem
Tucker Gideon, do.
Todd William, Newburyp't
Titcomb, jr. Jonathan, do.
Toppan Benjamin, do.
Toppan Abner, do.
Toppan Daniel, Newbury
Toppan Stephen, do.
Thompſon Thomas, Portſm.
Tarlton John, New-Caſtle
Thompſon Samuel, Portſm.
Thomas Rebecca, Charleſt.
Turner Nathaniel, do.
Tufts James, Medford

V.

Valpey Joſeph, Salem

W.

Walley, jr. Thomas, Roxb.
Watſon Nathan, do.
Williams Stephen, do.
Waldo Joſeph, Richmond
Wincheſter Jacob B. Salem
Weſton John, do.
Williams Mehitabel, do.
Winn Joſeph, do.
Whitmore James, do.
Wait Aaron, do.
Wing Cornelius, do.
Wain Gamaliel H. do.
Wyatt Joſiah, Newburyport

Walleigh Edward, Newbpt.
Wheelwright Ebenezer, do.
Willſon Peter, Portſmouth
Waldron, jr. Iſaac, do.
Wendell George W. do.
Walch Keyran, do.
Wentworth Daniel, do.
Wheeler Joſiah, do.
Wiley William, Charleſt'wn
Warren Iſaac, Medford
Wylly Alexander C. do.
Wade John, do.
Williams, jr. Gerſhom, do.

Y.

Young Iſrael, Newburyport
Young Jonathan, do.
Yeaton, jr. Robert, Portſm.

[*The following Names were received too late to take their places in the previous Arrangement.*]

A.

Alden Jonathan — Watertown

B.

Brattle Thomas — Cambridge
Bowen Daniel — Little Cambridge
Babcock Samuel — Watertown

C.

Cushing Bela — Boston
Cobb John — do.
Capen Samuel — Little Cambridge
Cromwell Daniel — Watertown

D.

Dana Isaac — Watertown
Dunlap, jr. Andrew — Boston

E.

Everett Aaron — Watertown
Emerson Timothy — do.

F.

Farrar Ephraim — Watertown
Fessenden Thomas

H.

Hill Joseph — Cambridge
Houghton Oliver — Boston

L.

Lankester William — Boston

M.

Makepeace Royal — Cambridge

N.

Norcross John — Cambridge

P.

Patten Isaac — Watertown

R.

Redman Thomas — Boston

S.

Stone Timothy — Newton
Swaney William — Cambridge

T.

Tappan Professor David, D. D. — Cambridge

Analytical TABLE of Contents.

VOLUME FIRST.

	Page
INTRODUCTION - -	1
State of Medicine, as a Science founded on facts	*ib.*
Obſervations on the general laws of Nature	4
Neceſſity of applying to the ſtudy of natural cauſes	5
Difference of opinions on medical ſubjects -	6
The origin and cauſes of diſeaſes inveſtigated	9
Cow-pox, a preventive of the Small-pox -	13
Remarks illuſtrating the doctrine of temperaments	14
The abſurdity and dangerous tendency of Patent or Quack Medicines pointed out -	22
Mr. James Parkinſon, on Quack Medicines -	24
The nature of faſhionable complaints defined	30
The ſource of them inveſtigated - -	31
The function of the ſkin explained - -	34
The neceſſity of bathing inculcated, as the beſt ſubſtitute for univerſal remedies - -	41
The nature and properties of Coſmetics examined	43
The only effectual ſubſtitutes for them recommended, and injunctions relative to the improvement of the ſkin - - - -	46
Strictures on the phyſical education of children	49
Frequent bathing, an uſeful practice in infancy	53
The proper temperature of the Bath, and its general effects - - - -	*ib.*
The cold Bath frequently dangerous to children	*ib.*
The lukewarm or tepid Bath far preferable	*ib.*
Directions to uſe this Bath with advantage -	56
The utility of the *Air Bath* pointed out -	57
Shortneſs of Sight and weakneſs of the Eyes	58
Importance of ſpacious nurſeries, and airing -	59
Hufeland's picture of a child properly managed, with reſpect to waſhing, airing, and bathing	60
Anecdote of a Ruſſian poſtillion - -	62
Feather-beds and cumberſome Dreſſes condemned	63
The origin of a *ſweating Skin* - -	*ib.*
A proper Couch for Children deſcribed -	64
Cleanlineſs, a cardinal virtue in domeſtic life	*ib.*

Page

Rickets, cured by cleanlineſs alone - - 64
How the head and breaſt ſhould be covered - 65
Hiſtorical anecdote from Herodotus - - *ib.*
Sudden improvements not ſucceſsful . - 66
There is no perfect and permanent ſtate of health 68
Quotation from Cicero - - - - - *ib.*

CHAP. I. *On the Means of preſerving Health and prolonging Life* - - 69

Definition of a good ſtate of health - - *ib.*
Reaſons for being ſatisfied with our preſent ſtate - 70
To avoid or cure diſeaſes, we ought to be acquainted with the economy of the human frame - *ib.*
The pretended purpoſe of *Noſtrums* explained - 71
Man has always more or leſs valued a long life - *ib.*
The method of prolonging life adopted by the *Orientals* 72
The ſame plan preſcribed by Boerhaave - - 73
The inefficacy of it demonſtrated - - - 74
The Egyptians reſorted to Sudorifics and Emetics 76
The Greeks employed natural means - - 77
The great advantage of *Gymnaſtic Exerciſes* conſidered 78
Modern methods of bracing the body - - 80
Excellence of the Grecian method - - - *ib.*
Plutarch's golden precepts - - - 81
Review of the barbarity of the middle ages - 82
The Alchemiſts in ſearch of *original matter* - 83
The Tincture of Gold introduced - - - 84
Sketch of the Goldmakers, Roſencrucians, &c. - 85
Productions of Alchemy ſhorten life - - 87
They impair the *ſuſceptibility*, or power of receiving *vital ſupplies* - - - - - 88
Theophraſtus Paracelſus, an inſurer of lives - *ib.*
The world of ſpirits is ſummoned to aſſiſt - - 89
The profeſſors of *Aſtrology* begin their impoſitions 90
The noted Thurneiſen appears at Berlin - - 91
Expoſition of that *occult ſcience*, Aſtrology - *ib.*
Cornaro ſhows the abſurdity of reſorting to ſupernatural means, by his illuſtrious example - 94
Bloodletting came into general uſe - - 98
In what caſes Veneſection may be of advantage 100
Definition of the *Art of prolonging Life* - *ib.*
The nature of the *Blood* inveſtigated - - *ib.*

Page
Libavius discovers the transfusion of the blood - 102
A short account of the *Paracelsian Theosophists* - 103
The process of *Transfusion* described - - 104
Lord Bacon deviates from the true path of inquiry 106
He advises the repetition of powerful laxatives every two or three years—his theory controverted - 107
Modern method of computing the duration of life 109
Medical imposture still prevalent in our enlightened age 112
Perkins' Metallic Tractors exploded - - *ib.*
The fanatical system of Jacob Böhmen - - *ib.*
Messmer appears, with his *Animal Magnetism* - 113
An account of his artful proceedings - - *ib.*
His advertisement extraordinary - - 116
He imposes upon the French government - 117
— realizes a princely fortune in Paris - - 118
— is at length proved to be either a fanatic or impostor 119
Lavater's *Animal Magnetism* and *Somnabulism* - 120
Messmer's system exploded - - 121
St. Germain's Tea for prolonging life - - *ib.*
D'Ailhoud's deleterious Powder - - 122
Cagliostro, an impostor with his *Balm of Life*, &c. *ib.*
Father Gassner ascribes all diseases to diabolical agency 123
Count Thunn, a German fanatic, obtains no credit 124
All specifics and plans for prolonging life rest upon erroneous principles - - - 125
Conditions requisite to attain a long life - *ib.*
1. Bodily and mental disposition to longevity - *ib.*
2. A sort of hereditary disposition - 126
3. A child's perfect birth, and mother's proper conduct *ib.*
4. A gradual culture of the physical and mental faculties - - - - - 127
5. A constant habit of brooking and resisting the various impressions of external agency - 129
6. A steady and equal progress of life - - 131
7. A sound state of digestion - - *ib.*
8. Equanimity of mind—avoiding violent exertions 132
Concluding remarks on the subject of *Longevity* 133
On the symptoms of actual *Dissolution* - - 134
Account of a new Institution in Germany - 135
Cases in which death can be clearly ascertained - 136
Symptoms where death is less certain - - 137
Children and young persons should not too hastily be considered as dead - - - 138

Page
Summary account of a *Dietetic Syſtem* - - 139
Explanation of the *Six Non-naturals* - 140
Preſent mode of living compared with that in a ſtate of nature - - - - 141
Many writers miſled by partial inquiries - 142
Illuſtrations relative to a Dietetic Syſtem - 143

CHAP. II. *Of Air and Weather* - 147

Of Air in general—*Reſpiration* - - - *ib.*
Definition of Air and Atmoſphere - - *ib.*
Preſſure of Atmoſphere incumbent on our bodies 148
Component parts of the Atmoſphere - 149
Conciſe Hiſtory of Oxygen - - - - *ib.*
Properties of Oxygen, and its effects on reſpiration *ib.*
——— Azote - - - 151
——— Carbonic Acid Gas, or Fixed Air *ib.*
——— Inflammable Air - - - 152
Specific gravity of the different Airs - 153
Noxious effects of mephitic gaſes - - - *ib.*
——— the vapours of Lead - - 154
The chemical proceſs in improving and reſtoring Atmoſpheric Air deſcribed - - 155
General Remarks relative to the advantages to be derived from a ſyſtematic view of *Dietetics* - 156
Effects of warm and cold air on the body - 157
——— damp or moiſt air - - - 158
——— dry and cool air - - - 159
——— ſudden changes of air - - *ib.*
——— the different winds - - 160
On the relative ſalubrity of the different Seaſons *ib.*
Effects of ſtrongly ſcented bodies - - 162
——— dwelling on lakes, marſhes, and rivers 163
Which is the moſt wholeſome air to live in - 164

Of the improvement of Air in Dwelling-houſes - 165

Situation of a houſe in point of health - 166
Criterion of a damp and unwholeſome air - *ib.*
The moſt proper ſituation of a ſitting-room - 167
Different ſtrata of Air in a room - - *ib.*
Modes of purifying the air by ventilators - *ib.*
Rules reſpecting the admiſſion of freſh air - 168
—— in moiſt and cold air—moiſt and warm air - 169
—— in hot and dry air - - - *ib.*

Page

Effects from exhalations of green plants and flowers 171
——— large trees with thick foliage - 172
——— the burning of candles - ib.
——— the steam of cooked provisions - ib.
——— exhalation of green fruit, oil, tallow, &c. 173
——— the vapours of charcoal - - ib.
——— impure wool, oil, colours, &c. - 174
——— keeping wet substances in dwelling-rooms ib.
General effects of *Heat* and *Cold* - - - 175
——— sudden transitions - - ib.
Of the proper dress for the season - - - 176
Of heating rooms in autumn - - - ib.
Of exposing the body to the bracing effects of cold 177
Precautions respecting changes of temperature - 178

CHAP. III. *Of Cleanliness* - 180
Extent of this domestic virtue - - ib.
Rules for practising it, as to the body, face, neck, &c. 181
——— with respect to Eating and Drinking - 183
On the Management of the Teeth - ib.
Advantage of cleaning them at night - - ib.
Precautions in removing the Tartar from the Teeth 184
The use of Dentifrices examined - - ib.
Rules for preventing the Tartar settling on Teeth 185
How to remove the Tartar, when settled - ib.
Some of the best remedies for the Tooth-ach - 186
Treatment of scorbutic Teeth and Gums - 187
Directions for preserving the Teeth—Tooth-powders ib.
——— cleaning them properly - 188
Of the Use of Baths - - - 189
Bathing forms the basis of domestic cleanliness ib.
Effects of the Bath in general - - 190
Division of Baths—Effects of the warm or tepid Bath 191
Of bathing in Rivers - - - 193
Historical narrative of the practice of bathing 194
The nature, properties and effects of the cold Bath 196
Drs. Currie and Franklin quoted - - 199
Rules for the use of the cold Bath - 203
Cases in which the cold Bath is injurious - 204
The *Shower-Bath* recommended—Substitutes for it 205
Advantages of the Shower-Bath - - ib.

Page
Account of the *Aërial* or *Air-Bath* - - 207
Friction of the body—cutting the hair—waſhing and ſhaving the head recommended - 208
Friction of the ſoles, and bathing of the feet - 209
Of Pomatums for making the hair grow - *ib.*
Of Corns, how to prevent and cure them - *ib.*

CHAP. IV. *Of Dreſs* - 211
Subſtance and Form of Dreſs - - *ib.*
The general properties of a good Dreſs - 212
Of the Materials uſed for Articles of Dreſs.
Proper Colour and Surface of ſubſtances conſidered *ib.*
Of Animal Wool, Linen, Silk, Wax-Cloth 213
Of Cotton and Furs - - - *ib.*
Attention to be paid to the Seaſon, Climate, &c. 215
On the immediate Covering of the Skin - *ib.*
Advantages of Animal Wool or Flannel explained 216
The objections againſt Flannel anſwered - 217
Salutiferous effects of Flannel, worn next the Skin 219
Of *Stockings*—proper ſubſtances for them examined 222
Of Dreſs, as to its Form.
On the moſt proper method of covering the Head 225
Of Shirts, Coverings for the Neck, &c. - 229
Of laced Stays, &c. - - - - 232
Of narrow Sleeves in Gowns - - 233
Of Breeches and Pantaloons - - 234
Of Braces—Drawers for females, and Garters 235
Of the form of Stockings and the ſize of Shoes 236
Of the ſubſtance for Shoes, and the manner of rendering them water-proof - - 237
Of changing the Shoes from one foot to the other 243

CHAP. V. *Of Exerciſe and Reſt* 245
The advantages and diſadvantages of Exerciſe 245—263
Of Friction of the body - - - - 265
On the conduct proper to be obſerved after Exerciſe 267
How to ſatisfy Thirſt after Exerciſe, &c. 268—272

CHAP. VI. *Of Sleeping and Waking* 274
Neceſſity of this alternation - - 275
A conciſe theory of Sleep - - - 276

Page
An inquiry into the nature of Dreams, &c. 277—284
Of Sleep - - - - 285—293
On the moſt proper Couches and Coverings 296
Diſadvantages of Feather-Beds, &c. - 298—301

VOLUME SECOND.

CHAP. VII. *Of Food and Drink* - 13
INTRODUCTORY remarks on the nature and effects of Food and Drink - - - *ib.*
Of Food in particular - - 17
Rules relative to the quantity of food - - *ib.*
On the different kinds of *appetite* - - - 18
Remarks on the quantity of aliment—on the nature of digeſtion and nutrition—mode and time of taking food - - - - - - 20
On the propriety of ſleeping after dinner - - 28
A diſcuſſion on the general effects of animal food 34
Of Animal Food - - - - *ib.*
The properties of game - - - - *ib.*
Different methods of dreſſing victuals inveſtigated *ib.*
Digeſtibility of animal and vegetable ſubſtances - 36
On preternatural hunger - - - - - 38
Of animal jelly—the fleſh of different animals compared as to its ſalubrity - - - - *ib.*
On the properties of Veal, Beef, Pork, ſmoked Hams, Sauſages, Bacon, Lard, Sheep, Lamb, Houſe-lamb, Goats, Deer, Veniſon, and Hare 41—49
On the properties of the Lungs, Liver, Heart, Kidneys, Fat, Blood, and Milk of Animals 50, 51
Directions for making *artificial Aſs's Milk* - - 54
Properties of Cream, Butter, Butter-milk, and Cheeſe 57
Cheeſe forms the ſtrongeſt cement yet contrived *ib.*
On the relative wholeſomeneſs of Birds in general 59
——————————— Bird's Eggs - 62
On the various methods of preſerving Eggs - - 63
An account of Mr. Donaldſon's Patent - - *ib.*
The properties and effects of Fiſh, amphibious Animals, Lobſters, Crabs, Oyſters, and Turtles 64, 65
The legs of Frogs uſed as food - - *ib.*
On the properties and effects of Snails and Muſcles 67

Page

Of Vegetable Aliment - - - - 68
Diviſion of the vegetable articles of nouriſhment into five orders - - - - - - *ib.*
1. The farinaceous Vegetables:—Bread, its nature and properties reviewed - - - *ib.*
Rice, Oats, Barley, Millet, Mannagraſs - 72, 73
2. The leguminous productions, as Beans, Peas, &c. 74
Green Peas - - - - 75
3. The various Salads and Herbs uſed for cooking 76
Aſparagus—Artichokes - - - 77
Of Salads—Spinage—Sorrel - - - *ib.*
— Red and White Cabbage—*Sauer Kraut* - *ib.*
— Lettuce - - - - - 79
4. The eſculent roots uſed at table - - *ib.*
Of Carrots—Turnips—Beet-root - - 81, 82
Of Parſley, Smallage, Celery, Parſnips, &c. - *ib.*
Scorzenera, Skirret-root, Salſafy - - 83, 84
Of Onions, Garlic, Shallot, Chives, and Radiſhes *ib.*
Arrow-root - - - - - 85
5. Fruit, or the production of trees and ſhrubs - *ib.*
Sago—Of Cherries - - - - 87
Of Plums, Peaches, Apricots, Pears - - 89
— Tamarinds, Apples, Quinces 89—92
— Lemons, Oranges, Limes, &c. - - *ib.*
— Raiſins - - - - - - 94
Vegetable Acids excellent correctors of Opium 93
Of Currants, Gooſberries, Grapes, and Strawberries 95
Strawberries, a preventive againſt the Stone in the Kidneys - - - - - 96
Of Cucumbers and Melons - - - *ib.*
— Gourds, Olives - - - - 97
— Almonds, Walnuts, Hazlenuts, and Nuts in general *ib.*
— Muſhrooms - - - - 98

Of Drink in particular - - - 99
I. With reſpect to the *quantity* and *time* of Drinking 100
II. With reſpect to its *quality* - - - 103
Of Spring, Well, River, and Lake-Water - 104
— Rain, Snow, Hail-Water, and Dew - 105
Various methods of correcting bad Water, and preſerving it when freſh - - - 106
Diviſion of *Wines* into five principal Claſſes - 107
Of Cyder and Perry - - - 108

Page
Conſtituent parts of Wine - - - 108
Its properties and effects in general - - 109
The ſtate of Intoxication explained - - 110
How to treat a perſon in that ſtate - - 111
Effects of a copious uſe of Wine - - *ib.*
On the adulterations of Wine, and the dangers attending them - - - - 112
Directions for detecting adulterated Wines - 113
Hahnemann's *Liquor vini probatorius* - - 115
Of ardent Spirits, their general properties, &c. 117
Of Beer, its ingredients, adulterations, properties, &c. 119
— Tea, its properties and effects on the Syſtem 124
Subſtitutes for Indian Tea recommended - 127
Of Coffee, its effects on particular conſtitutions 128
— Chocolate, Punch, Negus, Vinegar, Oil 131—134
Of Spices - - - - 135
Of Salt—Lord Dundonald's method of purifying it *ib.*
Of Sugar, Honey, Pepper - - 136—138
— Cubebs, Cardamoms, Vanilla, &c. - 139
— Cloves, Mace, Nutmeg, Cinnamon, Caſſia, Pimento (Allſpice) and Ginger - - *ib.*
— Parſley, Marjoram, Thyme, Sage - 141
— Carraway, its effects in flatulency, hyſterics, &c. *ib.*
Claſſification of the various articles uſed as Food, Drink, and Spices - - - 143
I. *Food:* Alimentary ſubſtances containing wholeſome fluids - - - - *ib.*
——— unwholeſome fluids - - - 146
II. *Drink:* Watery Liquors—Spirituous Liquors 147
III. Spices - - - - 148

CHAP. VIII. *Of Evacuations* - 149
On the importance of theſe functions - - *ib.*
The three principal emunctories defined - 150
Of Evacuations by Stool - - - 151
Conſequences of neglecting them - - *ib.*
Means promoting them, and preventing coſtiveneſs 152
Different appearance and effect of ſuch diſcharges 154
The cauſes of obſtructions and coſtiveneſs aſcertained *ib.*
The means of preventing them pointed out - 155

Page
How to guard againſt too frequent excretions - 156
Neceſſity of water-cloſets and other precautions 161
Of Urine - - - - - 162
Of the quality and quantity of this diſcharge - *ib.*
Of the prognoſtics from its appearance - 163
Of the nature and origin of urinary complaints 164
Of Inſenſible Perſpiration - - 166
The nature and great importance of this function 167
Circumſtances ſuppreſſing and affecting perſpiration 169
——— tending to promote it - - 170
Diſtinction between perſpiring and ſweating - *ib.*
Effect of Cold on inſenſible perſpiration - 171
——— of Food and Drink on the ſame - 172
——— of the depreſſing paſſions and emotions *ib.*
How too violent perſpiration ſhould be treated 173
On the common treatment of Colds - - 174
On exceſſive bleedings in general - - *ib.*
Of the Saliva—ſmoking Tobacco cenſured - *ib.*
Of the mucus of the noſe—the habit of taking Snuff, and its dangerous conſequences - - 176
The *acromatic belts* and *ſneezing powders* of a certain empiric animadverted upon - - 177
Of the wax in the Ears - - - - 179
Of Hemorrhages ; the menſes, hemorrhoids, &c. *ib.*
Of the retention of the *Milk* - - 180

CHAP. IX. *Of the Sexual Intercourſe* 182
On the important conſequences attending the exerciſe of this function - - - *ib.*
Conditions under which it is conducive to the well-being of the individual - - - - 183
In what caſes it is detrimental to Health - 186
Obſervations relative to the loſs of ſemen - 189
Situations unfavourable to the Sexual Intercourſe 191
Nature and conſtituent parts of the ſeminal fluid 192
On the proper time for this intercourſe, &c. - 193
Of the proper time and requiſites to a married life 198
On the general effects of too great abſtinence 199
--------- means of reſtoring the impaired energy, *aphrodiſiacs* - - - - - - 201
--------- means of diminiſhing the deſire of venery 202
View of the principal theories of Generation 204

Page

Of *Panſpermia*—*generatio æquivoca* - - 204
Hammon diſcovers animalculæ in the ſemen - 206
Buffon's opinion on this ſubject refuted - 207
The theory of *Evolution* reviewed, &c. - 208
Haller's and Bonnet's theories examined - 210
Remarks on the origin of the chicken in the egg *ib.*
Swammerdam's and Spallanzani's diſcoveries *ib.*
Singular ſtory of a miller's wife - - 211
Epigeneſis, or the theory of gradual formation 212
Blumenbach's definition of the *Niſus formativus* *ib.*

CHAP. X. *Of the Paſſions and Affections of the Mind* - - 214

Origin of the paſſions - - - *ib.*
Kaimes's diſtinction between affections and paſſions 215
Influence of the paſſions on the body—they are either of an agreeable or diſagreeable nature 216
General effects of *Joy*, *Gaiety*, *Cheerfulneſs*, &c. 218
Sanctorius's advice to the paſſionate - - 219
Definition of *Laughter*, *Hope*, *Love*, &c. - 219—222
Of the effects of *Weeping* - - - 224
The deſire of returning home, common among Swiſs 225
The *Nervous Fever* deſcribed by Manningham *ib.*
Of extravagant *Love*—Of *Jealouſy*, &c. 226—228
Of the origin of *Envy*, *Fear*, &c. - 229—236
Pythagoras's advice to avoid paſſions and deſires 239

CHAP. XI. *Of the Organs of Senſe* 242

A ſhort analyſis of Senſation - - *ib.*
Sœmmering's hypotheſis of the ſeat and operation of the Soul - - - - *ib.*
Definition of the external and internal Senſes 244
Specification of the Five Senſes, and conjectures reſpecting a Sixth - - - 248
The Senſe of *Touch* analyzed - - - *ib.*
Deſcription of the integuments of the body - 249
Of the *Epidermis*, or ſcarf-ſkin, &c. - 249—253
The Senſe of *Sight* analyzed - - *ib.*
Curious aſſertion of Baron Trenck - - *ib.*
Far-ſightedneſs and Short-ſightedneſs - 256
Cautions how to place children in bed - 257
The phenomenon of Sneezing explained - - *ib.*

	Page
Of the Senſe of *Hearing* - - -	259
Subſtitutes for common ear-trumpets ſuggeſted	261
Of the Senſe of *Smell*, and its mechaniſm -	262
Different ſize of the nerves in man and animals	264
On the improvement of the Senſe of Smell -	*ib.*
Anecdote of Leonhard Zollikofer's dog -	265
Of the Senſe of *Taſte*—its mechaniſm and functions	*ib.*
Remarks on animal motion, or muſcular action	268
Summary of the powers inherent in the human body	*ib.*
Deſcription of a *Muſcle* - - -	*ib.*
Account of the *Burſæ Mucoſæ* - -	271
Remarks on the variety of Temperaments -	273

CHAP. XII. *On the treatment and preſervation of the Eyes* - - 274

I. Importance of a proper care of theſe organs	276
II. Of Short-ſightedneſs, and the reverſe -	277
Directions for preventing ſhort-ſightedneſs in children	*ib.*
——— for the uſe of concave ſpectacles -	278
Of Farſightedneſs in particular - -	*ib.*
III. General Rules for the preſervation of the Eyes	279
IV. Of the conduct to be obſerved in weak Eyes	281
On the uſe of *Candles*, &c. - - -	282
How to manage the Eyes in the morning, &c.	285
Beſt ſituation of a ſitting-room and deſk -	286
Cautions relative to the Eyes - -	287
——— reſpecting candle-light in the night, &c.	288
Remarks on the common Eye-caſes -	289
On the advantage of bathing the Eyes in cold water	290
V. Dietetical Precepts reſpecting the Eyes in general	292
Facts related by Montaldus and Ruſſell -	296
VI. Some additional Rules for the uſe of Eye-glaſſes	297
In what caſes Eye-glaſſes may be uſed to advantage	*ib.*
How to chooſe Spectacles properly -	298
Green glaſſes, when to uſe them - -	299
Reading-glaſſes condemned - - - -	*ib.*
Spectacles, when proper, and how to be choſen	300

Concluſion - - 303—310

General Reflections—On Moderation, &c. 303

Corollary - - - 311

POSTSCRIPT - - - 312

LECTURES

ON

DIET AND REGIMEN.

INTRODUCTION.

On the preſent State of Medicine as a Science.

WE apparently live in an age, when every branch of human knowledge is reduced to a popular ſyſtem; when the moſt important ſciences lay aſide the garb of pedantry and myſticiſm; when, in ſhort, the ſources of information are open to every rank, and to both ſexes. An improvement, which is ſo conſpicuous, muſt ultimately be attended with the moſt deſirable and extenſive effects.

Among other beneficial purſuits to render the comforts of life more numerous and permanent, we have occaſion to obſerve, that Natural Philoſophy and Chemiſtry contribute a principal ſhare in ſpreading uſeful knowledge among all ranks of ſociety.

Since Medicine, conſidered as a ſcience, which reſts upon practical rules of experience, is in a great meaſure founded upon Natural Philoſophy and Chemiſtry, it will be allowed that with the daily progreſs of the latter, Medicine alſo muſt neceſſarily partake

of their improvements, and continually receive acceſſions conducive to its further perfection.

With the progreſſive increaſe of refinement and luxury, a certain weakneſs and indiſpoſition, whether real or imaginary, has infeſted ſociety in the character of a gentle epidemic. It cannot properly be called a diſeaſe, but rather an approximation to an infirm ſtate, which almoſt involuntarily compels man to reflect upon the relative ſituation of his phyſical nature, to acquire correct ideas on health, diſeaſe, and the means of prevention or relief, and thus imperceptibly to become his own guide.

Every individual of any penetration now claims the privilege of being his own phyſician: It is not unfaſhionable to form a *certain* ſyſtem concerning the ſtate of our own health, and to conſider it as the criterion, by which we may judge of ourſelves and others, of patients and their phyſicians.

Formerly, people were not accuſtomed to think of the phyſical ſtate of their body, until it began to be afflicted with pain or debility: In which caſe, they intruſted it to the practitioner in Phyſic, as we deliver a time-piece to a watchmaker, who repairs it according to the beſt of his knowledge, without apprehending, that its owner will be at the trouble of thinking or reaſoning upon the method, which he judged to be moſt proper.

In our times, we frequently undertake the charge of preſcribing medicines for ourſelves;

And the natural conſequence is, that we ſeldom are able to tell, whether we are healthy or diſeaſed; that we truſt as much, if not more, to ourſelves than to the phyſician, who is only ſent for occaſionally; and that we cannot conceive him to be perfectly free from the ſyſtems of the ſchools, from ſelf-intereſt or profeſſional motives. Thus, by an acquaintance with medical ſubjects, which of itſelf is laudable, not only the ſkill of the phyſician is frequently thwarted, but the recovery of the patient unhappily retarded, or at leaſt rendered more difficult.

No diſeaſe is now cured without demonſtration; and he who can neither diſcover nor comply with the peculiar ſyſtem of health adopted by his patient, may indeed act from motives dictated by reaſon and humanity; but his ſucceſs as a *practical phyſician*, in the common acceptation of that phraſe, muſt ever remain problematical. Yet this general propenſity to inveſtigate medical ſubjects, if it were properly directed and gratified might be attended with very happy effects. For the medical art ought not to be ſubject to an imperious and faſcinating demon, whoſe labours are chiefly carried on in the dark receſſes of myſtery, whom we know only from his baneful influence, as he ſpares no objects of prey, and holds his votaries in a perpetual ſtate of dependence!

"The veil of myſtery," ſays a modern popular writer, "which ſtill hangs over Medicine, renders it not only a conjectural, but even a ſuſpicious art. This has been long ago

removed from the other ſciences, which induces many to believe, that Medicine is a mere trick, and that it will not bear a fair and candid examination. Medicine, however, needs only to be *better* known, in order to ſecure the general eſteem of mankind. Its precepts are ſuch as every wiſe man would chooſe to obſerve, and it forbids nothing but what is incompatible with true happineſs."

Obſervations on the general Laws of Nature.

If we reflect upon the admirable uniformity which prevails through the works of nature, both in the production and diſſolution of matter, we find that ſhe invariably moves in a circle; that in the perpetual conſtruction, as well as in the ſubſequent demolition of bodies, ſhe is always equally new and equally perfect; that the ſmalleſt particle, though inviſible to our eyes, is uſefully employed by her reſtleſs activity; that death itſelf, or the deſtruction of forms and figures, is no more than a careful decompoſition and a deſigned regeneration of individual parts, in order to produce new ſubſtances, in a manner no leſs ſkilful than ſurpriſing. We further obſerve, that in the immenſe variety of things, in the inconceivable waſte of elementary particles, there nevertheleſs prevails the ſtricteſt economy; that nothing is produced in vain, nothing conſumed without a cauſe. We clearly perceive that all nature is united

by indiſſoluble ties; that every thing exiſts for the ſake of another, and that no one thing can exiſt without its neighbour. Hence we juſtly conclude, that man himſelf is not an inſulated being, but that he is a neceſſary link in the great chain, which connects the univerſe.

Nature is our ſafeſt guide, and ſhe will be ſo with greater certainty, as we become better acquainted with her operations, eſpecially with reſpect to thoſe particulars which more nearly concern our phyſical exiſtence. Thus, a ſource of many and extenſive advantages will be opened; thus we ſhall approach to our original deſtination—namely, that of living long and healthy.

On the contrary, as long as we move in a limited ſphere of knowledge; as long as we are unconcerned with reſpect to the cauſes which produce health or diſeaſe, we are in danger, either of being anxiouſly parſimonious, or prodigally profuſe of thoſe powers, by which life is ſupported. Both extremes are contrary to the purpoſe of nature. She teaches us the rule of juſt economy:—we, being a ſmall part of her great ſyſtem, muſt follow her example, and expend neither too much nor too little of her treaſures.

Although it be true that our knowledge of nature is ſtill very imperfect, yet this circumſtance ought not to deter us from inveſtigating the means which may lead to its improvement.

We are aſſiſted by the experience of ſo many induſtrious inquirers, of ſo many found

philoſophers, that we may flatter ourſelves with the hopes of diſcovering ſome of her hidden ſecrets, and of penetrating ſtill further into her wonderful receſſes. This, however, cannot be accompliſhed, without much patience and perſeverance in the ſtudent.

All men, it is true, have not ſufficient time and opportunities to acquire an accurate and extenſive knowledge of nature; but thoſe are inexcuſable, who remain entire ſtrangers to her ordinary operations, and particularly if they neglect to cultivate a proper acquaintance with the conſtitution of their own frame. If, indeed, we were fixed to the earth like the trees by their roots, or if from mere animal inſtinct we were ſtimulated to inquire into the cauſes of our phyſical life, we then ſhould vegetate, or live like plants or irrational animals. But, in the character of creatures, who ought to chooſe and to reject agreeably to the dictates of reaſon, a more aſſiduous and minute ſtudy of nature, as well as of our own frame, is indiſpenſable; becauſe the human body cannot ſubſiſt, unleſs we ſecond her intentions and co-operate with her beneficent efforts.

Difference of Opinions on Medical Subjects.

It is not unfrequently objected, that Medicine itſelf is an uncertain, fluctuating, and precarious art. One medical ſchool, for inſtance, conſiders the maſs of the fluids as the

primary cauſe of all diſeaſes; another aſcribes them to the irregular action of the ſolids, and particularly the nerves; ſome again conſider that as the cauſe of the diſorder, which many are inclined to repreſent as the effect. Thus, different ſchools propagate different tenets relative to the origin of diſeaſes; though ultimately, with reſpect to matters of fact, they muſt all neceſſarily agree. Nor is this diverſity of opinions in the leaſt degree detrimental to the practical department of Medicine; provided that we do not regulate the mode of treatment altogether by hypothetical notions. Of what conſequence is it to the patient, whether his phyſician imagines the nerves to be fine tubes, filled with a ſubtle fluid, or not? whether he believes that catarrhs ariſe from noxious particles floating in the air, or from catching cold?—or whether he is prejudiced in favour of this or that particular theory of fevers?—It is a ſufficient ſecurity to the patient, if his phyſician be thoroughly acquainted with the ſymptoms of the diſeaſe, and be able to diſtinguiſh them from thoſe of any other malady. In this reſpect, the medical art is truly excellent, and without a rival; for the nature of diſeaſes remains invariably the ſame. The accurate obſervations made by Hippocrates, two thouſand years ago, on the progreſs and ſymptoms of diſeaſes, recur to the medical practitioner of the preſent day, in a manner ſufficiently regular and uniform.—And, in fact, how ſhould it be otherwiſe; when nature always purſues the ſame path,

whether in a healty or diſeaſed ſtate of the body?

Here again it will be aſked, whence does it happen that two phyſicians ſeldom agree in opinion, with regard to the caſe of the ſame patient? This queſtion may be briefly anſwered, by claiming the ſame right for the medical profeſſion, which is aſſumed by theologians in conteſted points of divinity; by lawyers in arguing any part of their code, which is not perfectly plain; and by philoſophers who maintain different opinions on the ſame ſubject in metaphyſics; for inſtance, that of *ſpace* and *time*. But there are more forcible reaſons which enable us, in ſome meaſure, to account for this diverſity of opinions in Medicine. One of the phyſicians, perhaps, is in the habit of viſiting fifty patients in a forenoon, ſo that he has not ſufficient time to inveſtigate minutely the nature and origin of the diſeaſe; while another of leſs extenſive practice is enabled to do more juſtice to his patients, by attending to their complaints with proper leiſure and accuracy. One of them ſhall diſtinguiſh ſome of the leading ſymptoms, and without heſitation pronounce, that he has diſcovered the true ſeat of the malady; but as many diſeaſes of a different nature are attended with ſimilar and common ſymptoms, there is no ſmall danger of confounding the one with the other. Another ſhall enter the patient's room with a pre-conceived opinion on the ſubject of ſome prevailing epidemic, or with his head probably full of the caſe which occupied his

attention in the laſt viſit. With theſe impediments, how difficult will it be to inſtitute a cool and unbiaſſed inquiry? If, again, both ſhould happen to be called in at different ſtages of the diſorder, each of them would preſcribe a different method of cure, and the judgment of him who was laſt conſulted, would in all probability be the moſt correct. Or laſtly, a phyſician may be ſent for, who, having commenced his ſtudies about the middle of this century, has not (from want of time or inclination) ſufficiently attended to the more recent diſcoveries of this inquiſitive age; how can it then be expected, that he ſhould agree in opinion with thoſe, whoſe knowledge has been improved by the numberleſs new facts and obſervations lately made in phyſics, particularly in Chemiſtry?

Origin and Cauſes of Diſeaſe.

Man is ſubject to the ſame deſtructive agents from without, by which the lower animals are affected; but there is no doubt, that he is more eaſily and frequently expoſed to diſeaſes than theſe. *Firſt*, The inferior creatures are unqueſtionably provided with a more active inſtinct, by which nature teaches them, from their very birth, to avoid every thing that may prove hurtful, and to chooſe whatever may have a ſalutary influence on their mode of living. Few traces of this beneficial inſtinct can be diſcovered in

the human race. Our own experience, or the inſtructions of others, which are likewiſe founded upon experience, muſt gradually teach us the wholeſome or pernicious qualities of the objects of the material world.—Reaſon, indeed, that peculir faculty of man, indemnifies him, in a great meaſure, for the want of this inſtinct; it directs his choice in purſuing what is uſeful, and in avoiding what is injurious. Yet at the ſame time, the want of inſtinct in man, is the ſource of many ſufferings in the earlier years of his life.—He is born without covering, to withſtand the effects of climate; without arms, to defend himſelf in his helpleſs ſtate, and without inſtinct, if we except that of ſucking. He remains much longer incapable of providing for his ſelf-preſervation, and ſtands in need of the aſſiſtance of his parents for a much greater number of years, than any other animal with which we are acquainted. Although his parents, in general, acquit themſelves of this charge with much greater ſolicitude and tenderneſs than the lower animals, yet our imperfect inſtinct is productive of much miſchief to children, from ignorance and ill directed tenderneſs in parents and nurſes. Children are frequently furniſhed with articles of food and dreſs which, at a more advanced age, nouriſh the ſeeds of diſeaſe and diſſolution. Thus, many infants are indebted for their obſtructions in the meſentery, and the conſumptive habit attending them, to their uninformed and over anxious parents or friends, who commit daily errors

with regard to the quantity and quality of the aliment, which in many inſtances they ſo liberally adminiſter to the objects of their care; even though it be of an indigeſtible nature.

In the *ſecond* place, it is a fact univerſally admitted, that mankind, eſpecially in large and populous towns, have much degenerated in bodily ſtrength, energy of mind, and in their capacity of reſiſting the noxious agency of powers which affect them from without.

The progreſſive cultivation of the mind, together with the daily refinements of habits and manners, are ever accompanied with a proportionate increaſe of luxury. But as this change, from a robuſt to a more relaxed ſtate of life, has produced no difference in the *cauſes* generating diſeaſe, to which we are even more ſubject than formerly, we muſt neceſſarily ſuffer by the concomitant *effects*. For though luxury has aſſiſted us in preventing the temporary effects of external agents, ſuch as cold, heat, rain, &c. and we can occaſionally guard ourſelves againſt their ſeverity, we are, upon the next return of them, attacked with much greater violence, than if we had been more habituated to their influence. And this ſtate of things has imperceptibly introduced the uſe of many articles, both of dreſs and aliment, which in their conſequences often prove detrimental to health. Hence we find, that in proportion as the refinements of luxury increaſe in a nation, the number and variety of diſeaſes alſo

increaſe. On the contrary, the more uncivilized a people continue, and the more their habits and cuſtoms approximate to a ſtate of nature, the leſs are they affected by the cauſes of diſeaſe.

In the *third* place, we obſerve among the human race a greater number of prevailing paſſions, and man is more violently, and, for the time of their duration, more obſtinately governed by them, than any other living creature. Theſe emotions variouſly affect the human body. But the moſt noxious and oppreſſive than any other of all the paſſions, are *terror* and *grief:* The former of which is ſometimes ſo violent as to threaten immediate deſtruction. Controlled by their powerful influence, and hurried away by the impulſe of the moment, the mind is rendered incapable of judging, and of properly ſelecting the means of allaying thoſe paſſions.—Hence the remedies, to which we have recourſe during the prevalence of paſſion, and which then appear to us the moſt proper, frequently lay the foundation of innumerable diſorders, both of body and mind.

A *fourth* ſource of diſeaſes among mankind, are various ſpecific contagions; and perhaps the greater number of theſe originate in the atmoſphere which ſurrounds us. This is highly probable, at leaſt with reſpect to marſhy exhalations, and the effluvia of regions rendered unwholeſome by different manufacturing proceſſes. Another claſs of contagious miaſmata conſiſts of thoſe which cannot be traced to any certain origin. In-

deed, we daily obſerve their migrations; we perceive them moving from one individual to another, without fixing any ſtationary reſidence: Yet they have hitherto fruſtrated every attempt made towards their extirpation. Of this unſettled nature are, the ſmall pox, the meaſles, the hooping cough, the influenza, and many other epidemics. The firſt of them, namely the ſmall pox, has of late years been very ſucceſsfully treated; and it is well known that ſome of the moſt ingenious practitioners in Italy and Germany are, at this moment, employed in a ſerious attempt, wholly to extirpate this contagion from the Continent of Europe; an object which has formerly been accompliſhed in the caſes of the plague and leproſy.*

* The means employed by our anceſtors, in ſubduing the virulence of theſe malignant diſorders, conſiſted chiefly in ſeparating every infected perſon from the healthy, and preventing all intercourſe between them. For this purpoſe, many thouſand houſes of reception were then eſtabliſhed and ſupported at the public expenſe, in every country of Europe; the diſeaſed were inſtantly and carefully removed to thoſe houſes, and not permitted to leave them till perfectly cured. A meaſure ſomewhat ſimilar to this has lately been propoſed, and laid before the Plenipotentiaries of the Continental Powers aſſembled at Raſtadt, by Profeſſor Junker, Dr. Fauſt, and other German Phyſicians. This propoſal, however, differs eſſentially from the former method of extirpating contagious diſorders: as, according to the modern plan, we underſtand every individual, whether willing or not, muſt ſubmit to be inoculated for the ſmall-pox.

To deprive this loathſome diſeaſe of its deſtructive power, another method, perhaps more plauſible and leſs compulſory, has been lately attempted in this country, and ſtrongly recommended by Drs. JENNER, PEARSON, WOODVILLE, and other practitioners. I allude to the inoculation for the *cow-pox*. It is ſincerely to be wiſhed, that their humane efforts may be crowned with ſucceſs: and if it

On the Doctrine of Temperaments.

SINCE it is eſtabliſhed by numberleſs facts, that the temperaments, as well as the diſeaſes, of whole nations, are in a great meaſure influenced by their ordinary articles of food, it will no longer be doubted, that the moſt important conſequences reſult from our aliment, whether of food or drink.

As the *doctrine of temperaments* is in itſelf highly curious and intereſting, I think this a proper place for introducing ſome practical remarks, tending to illuſtrate that ſubject, and preſenting a conciſe view of it, chiefly derived from the learned annotations of the celebrated Profeſſor Sömmering of Mayence.

"The doctrine of temperaments," ſays he, "in the general acceptation of that term, muſt be allowed to have greatly miſled the ancient phyſicians, and particularly thoſe who lived before the time of *Galen*. We are not, however, to infer from this, that

be true that perſons inoculated for the cow-pox are *forever* exempt from the infection of the *ſmall-pox*, and that this artificial tranſlation of morbid matter from the brute to the human ſubject is not attended with danger, it is of little conſequence whether the cow-pox originate from any cutaneous diſeaſe of the milker, or from the greaſe of horſes. For my part, I am not very ſanguine in my expectations, which have often been diſappointed on ſimilar occaſions; and till I can perſuade myſelf of the perfect analogy ſubſiſting between the two diſeaſes, nay of their homogeneous nature, I ſhall patiently wait for a greater number of facts tending to confirm the truth of the hypotheſis. This, however, in my opinion, can be decided only, when the *ſmall-pox* ſhould appear as the *prevailing epidemic*.

the doctrine itself is without foundation.—They erred not, by admitting the existence of temperaments; for that seems now to be fully established; but by too great a fondness for *generalization*; by limiting the number of them to *four*, and fixing their attention in this division simply on the nature and composition of the blood, instead of regarding the whole animal economy. Thus, for instance, they knew many parts of the human body scarcely by their names, and were little, if at all, acquainted with the great influence of the nerves; while our modern physicians pay an almost extravagant homage to these fashionable co-operators in diseases, and frequently forget, in their attention to their favourites, the more important, at least more obvious, parts of the fluids.

"There is a certain line observable in all the more perfect animals, by which nature is regulated in performing the functions of body and mind; in preserving or impairing the health, and in exerting all those energies of life, on which the happiness of the creature depends. This line is various in different individuals, and the variety cannot be completely explained on the principle of the ancients, by a difference in the qualities of the blood alone; though a human body of moderate size contains not less than thirty pounds weight of that fluid. Other terms must therefore be substituted for their *sanguine*, *choleric*, *phlegmatic*, and *melancholy* temperaments; but before we attempt them, it

will be neceſſary to take a more extenſive view of the economy of man.

"The cauſes of the difference of temperaments are various: *Firſt*; a difference in the nervous ſyſtem, with reſpect to the number of the nervous fibres, their ſtrength, and ſenſibility. A large brain, coarſe and ſtrong nerves, and great general ſenſibility, have always been found to be the marks of a *choleric* or *cholerico-ſanguine* diſpoſition. Hence proceeds the quickneſs of perception and capacity of knowledge in perſons of this claſs, accompanied with great acuteneſs and ſtrength of judgment, from the multitude of their ideas of compariſon. Theſe qualities are, however, in ſome meaſure counterbalanced by a violent propenſity to anger, and impatience under ſlight ſufferings of body or mind. Medicines ought, therefore, to be cautiouſly adminiſtered to them, and in ſmall quantities only. A diminutive brain and very delicate nerves have generally been obſerved to be connected with dull ſenſes, and a phlegmatic languor—ſometimes with a taint of melancholy. To affect the organs of ſuch perſons, the impreſſion of external objects muſt be ſtrong and permanent. Their judgments are often childiſh from the want of ideas, and hence they are ſeldom able to make great progreſs in ſcience. They are, however, more fit to endure labour, and the injuries of climate; conſequently their medicines ſhould be ſtrong, and adminiſtered in large quantities.

"*Secondly*: Difference of irritability is another cauſe of difference of temperament. When the fibres are excited by the ſlighteſt ſtimulus to quick and permanent contraction, we may juſtly infer the exiſtence of a choleric diſpoſition; while a phlegmatic temper diſplays itſelf by oppoſite ſymptoms; the muſcles being ſlowly contracted, and excited with difficulty by the moſt powerful ſtimulus.

"*Thirdly*: The fibres and membranes of a phlegmatic perſon are remarkably ſoft to the touch; thoſe of a melancholic perſon hard and dry, with greater tone and facility of contraction.

"*Fourthly*: There appears to be ſufficient reaſon for the opinion, that an *electric* principle is diſperſed through the atmoſphere, which is communicated to the body, in different degrees, by reſpiration; which ſupplies the fibres with their natural tone; gives a more lively motion to the veſſels; and increaſes the ſerenity of the mind. This principle does not exiſt in the atmoſphere in equal quantities in all countries, nor even in the ſame country at different ſeaſons or hours of the day. Thus, during the influence of the *Sirocco* in *Sicily*, all the fibres are oppreſſed by languor; but when the air becomes more ſerene and elaſtic, the natural energy of body and mind returns. All men do not inſpire this electric matter in equal quantities, and thus a remarkable difference of temperament is produced.

"*Fifthly:* To these causes must be added the different nature and quantity of the blood. Thus, when the blood is highly stimulant, the heart is excited to more violent action; an increased secretion of bile promotes the vermicular motion, and a superfluity of mucus disposes to catarrh, &c. From these considerations it is evident, that there are causes sufficiently powerful to produce, at a very early period of life, an unalterable predisposition to a certain temperament. That a complete change is ever effected, from a choleric habit, for instance, to a phlegmatic, cannot be consistently admitted, at least while the laws of nature remain unalterable. I will, however, admit that the temperaments, though not completely changed, may be modified;—that the vehemence of some, and the languor of others, may to a certain degree be lessened; but this must be done by remedies suited to the class of the causes productive of a particular temperament. Of these the principal are:

"1. A different regimen. Thus animal food imparts the highest degree of strength to the organs, enlivens the senses, and often occasions a degree of ferocity; as is evident in cannibals, in carnivorous animals in general, in butchers and their dogs, in hunters, particularly when aided by the frequent use of spices, wines, and stimulating medicines. Vegetable diet, on the contrary, diminishes the irritability and sensibility of the system;

in a word, renders it phlegmatic.—Some authors indeed have conſidered potatoes as being the means of contributing to that end; but I am not inclined to ſubſcribe to this doctrine; ſince I have had occaſion to obſerve the lively temperament of the common people in Ireland.—Yet attention to this is highly neceſſary in thoſe, who have the charge of children; as by the uſe of animal food, additional energy may be given to the fibres, and when their irritability is too great, it may be diminiſhed by an oppoſite regimen.

"2. Education, both phyſical and moral, is another cauſe of alteration in the temperament of man. Its power is almoſt unbounded, eſpecially in the more early periods of life; and hence it often happens, that whole nations ſeem to poſſeſs one common temperament.

"3. Climate, in its moſt extenſive ſenſe, comprehending atmoſphere and ſoil, is a third cauſe of alteration. The activity and acuteneſs of a choleric habit are ſeldom to be found in a region of perpetual fog; as for inſtance, in Holland. They are the natural produce of a warm climate, and require a gentle elevation of ſurface, with a moderately moiſt ſoil, and a ſerene, equal atmoſphere.

"4. I have often obſerved an aſtoniſhing degree of activity communicated to the whole ſyſtem, by an ardent deſire of learning; ſo that the temperament ſeemed to receive new life from every acceſſion of knowledge.

"5. The want of the neceſſaries of life, on the one hand, or poſſeſſion of the means of luxury on the other, variouſly modify the diſpoſition;—and the livelineſs of the temperament is alſo obſerved to riſe or fall, according to the degree of political freedom.

"6. Age, company, and profeſſional duties greatly affect the temperament. Hence we ſeldom find any one who, at 56 years of age, retains the activity of that choleric or ſanguine habit which he poſſeſſed at 36.

"Thoſe who follow nature, and not a plauſible hypotheſis, will be ſenſible how difficult it is to claſſify and fix the characteriſtic marks of the different temperaments; and it is rather a matter of doubt, whether the following rude ſketch will be more ſucceſsful than the attempts of others.

"All the modifications of temperaments appear to be varieties of the *ſanguine* and *phlegmatic*.

"1. The ſanguine is variable. It is marked by a lively complexion; the veſſels are full of blood; and perſons of this habit are ſeldom able to bear great warmth; they are prediſpoſed to inflammations, and poſſeſs a high degree of irritability and ſenſibility. All is voluptuous in this temperament. They are fickle in every thing they undertake; are affable, and ſoon become acquainted, but as ſoon forget their friends, and are ſuſpicious of every body. Whatever requires induſtry they abhor, and hence make little progreſs in ſcience, till they advance in age.

"2. The ſanguineo-choleric enjoys all the health and ſerenity of the ſanguine, with all the perſeverance of the choleric.

"3. In the choleric, the body is ſoft and flexible, without being dry and meagre as in the melancholic; the ſkin has a teint of yellow; the hair is red; the eyes dark and moderately large, with a penetrating expreſſion, and frequently a degree of wildneſs; the pulſe full and quick; the muſcular contractions in walking, ſpeaking, &c. are rapid; the bile is copious and acrid, and hence the vermicular motion is active, and the body not liable to coſtiveneſs. Perſons of this claſs are particularly fond of animal food. They poſſeſs great magnanimity, are fitted for laborious undertakings, and ſeem born to command.

"4. He whoſe temperament is hypochondriacal, is a burthen to himſelf and others. Perſons of this claſs are ſubject to diſeaſes of the liver, and hence have a ſallow complexion. They are never content with their ſituation, and are a prey to envy and ſuſpicion.

"5. The melancholic temperament is marked by a gloomy countenance, ſmall, hollow, blinking eyes, black hair, a rigid or tough ſkin, dry and meagre fibres. The pulſe is weak and languid, the bile black, the vermicular motion ſlow. The perceptions of perſons of this diſpoſition are quick; they are fond of contemplation, and are ſlow in the execution of labour, which they patiently undertake. They bear with reſolu-

tion the troubles of life; and, though not eaſily provoked, are nevertheleſs vindictive.

"6. The *Bœotic* or ruſtic temperament has many of the qualities of the ſanguine, in common with many of thoſe of the phlegmatic. The body is brawny, the muſcles have but little irritability, the nerves are dull, the manners rude, and the powers of apprehenſion weak.

"7. The gentle temperament is a combination of the ſanguine, choleric, and phlegmatic. Univerſal benevolence is the diſtinguiſhing character of this claſs. Their manners are ſoft and unruffled. They hate talkativeneſs; and if they apply to ſcience, their progreſs is great, as they are perſevering and contemplative. Laſtly,

"8. The phlegmatic claſs is marked by a ſoft, white ſkin, prominent eyes, a weak pulſe, and languid gait. They ſpeak ſlowly, are little hurt by the injuries of the weather, ſubmit to oppreſſion, and ſeem born to obey. From their little irritability, they are not eaſily provoked, and ſoon return to their natural ſtate of indifference and apathy."

On Patent or Quack Medicines.

ALTHOUGH there is but one ſtate of perfect health, yet the deviations from it, and the genera and ſpecies of diſeaſes, are almoſt infinite. It will hence, without difficulty, be underſtood, that in the claſſes of medical re-

medies there muſt likewiſe be a great variety, and that ſome of them are even of oppoſite tendencies. Such are both the warm and the cold bath, conſidered as medical remedies. Though oppoſite to each other in their ſenſible effects, each of them manifeſts its medical virtue, yet only in ſuch a ſtate of the body as will admit of uſing it with advantage.

It is evident from theſe premiſes, that an univerſal remedy, or one that poſſeſſes healing powers for the cure of *all* diſeaſes, is in fact a nonentity, the exiſtence of which is phyſically impoſſible, as the mere idea of it involves a direct contradiction. How, for inſtance, can it be conceived, that the ſame remedy ſhould be capable of reſtoring the tone of the fibres, when they are relaxed, and alſo have the power of relaxing them when they are too rigid; that it ſhould coagulate the fluids when in a ſtate of reſolution, and again attenuate them when they are too viſcid; that it ſhould moderate the nerves in a ſtate of preternatural ſenſibility, and likewiſe reſtore to them their proper degree of irritability, when they are in a contrary ſtate.

Indeed, the belief in an univerſal remedy appears to loſe ground every day, even among the vulgar, and has been long exploded in thoſe claſſes of ſociety, which are not influenced by prejudice, or tinctured with fanaticiſm. It is, however, ſincerely to be regretted, that we are ſtill inundated

with a flood of advertiſments in almoſt every newſpaper; that the lower and leſs enlightened claſſes of the community are ſtill impoſed upon by a ſet of privileged impoſtors, who frequently puzzle the intelligent reader to decide, whether the boldneſs or the induſtry with which they endeavour to eſtabliſh the reputation of their reſpective poiſons, be the moſt prominent feature in their character.*—It was juſtly obſerved by the ſagacious and comprehenſive Bacon, "that a reflecting phyſician is not directed

* To illuſtrate this propoſition farther, I ſhall quote the ſenſible remarks of a late writer, Mr. JAMES PARKINSON, who expreſſes himſelf, in his "*Medical Admonitions*," when treating on the ſubject of Catarrh, in the following pertinent words:

"Moſt of the Noſtrums advertiſed as *cough drops*, &c. are preparations of opium, ſimilar to the paregoric elixir of the ſhops, but diſguiſed and rendered more deleterious, by the addition of aromatic and heating gums. The injury which may be occaſioned by the indiſcriminate employment of ſuch medicines, in this diſeaſe, may be very conſiderable; as is well known by every perſon poſſeſſing even the ſmalleſt ſhare of medical knowledge.

"It would undoubtedly be rendering a great benefit to ſociety, if ſome medical man were to convince the ignorant of the pernicious conſequences of their reliance on advertiſed Noſtrums: but, unfortunately, the ſituation in which medical men ſtand is ſuch, that their beſt-intentioned and moſt diſintereſted exertions for this purpoſe would not only be but little regarded, but frequently would be even imputed to baſe and invidious motives. Thoſe to whom they have to addreſs their admonitions are unhappily thoſe on whom reaſon has leaſt influence. "Prithee, Doctor," ſaid an old acquaintance to a celebrated empiric, who was ſtanding at his door, "how is it that you, whoſe origin I ſo well know, ſhould have been able to obtain more patients than almoſt all the regular-bred phyſicians?"—"Pray," ſays the Quack, "how many perſons may have paſſed us whilſt you put your queſtion?"—"About twenty."—"And, pray, how many of thoſe do you ſuppoſe poſſeſſed a competent ſhare of common ſenſe?"—"Perhaps one out of twenty."—"Juſt ſo," ſays the Doctor; "and that one applies to the regular phyſician, whilſt I and my brethren pick up the other nineteen."—P. 327 and 328.

by the opinion which the multitude entertain of a favourite remedy; but that he muſt be guided by a ſound judgment; and conſequently he is led to make very important diſtinctions between thoſe things, which only by their name paſs for medical remedies, and others which in reality poſſeſs healing powers."

I am induced to avail myſelf of this quotation, as it indirectly cenſures the conduct of *certain* medical practitioners, who do not ſcruple to recommend what are vulgarly called Patent and other Quack medicines, *the compoſition of which is carefully concealed from the public.* Having acquired their ill-merited reputation by mere chance, and being ſupported by the moſt refined artifices, in order to delude the unwary, we are unable to come at the evidence of perhaps nine-tenths of thoſe who have experienced their fatal effects, and who are now no longer in a ſituation to complain.

The tranſition from *Panaceas*, or univerſal remedies, to *Noſtrums* or *Specifics*, ſuch, for inſtance, as pretend to cure the *ſame* diſeaſe in *every* patient, is eaſy and natural. With the latter alſo, impoſitions of a dangerous tendency are often practiſed. It will probably be aſked here, how far they are practically admiſſible, and in what caſes they are wholly unavailing. It is not very difficult to anſwer this queſtion. In thoſe diſeaſes, which in every inſtance depend upon the ſame cauſe, as in agues, the ſmall-pox, meaſles, and many other contagious diſtempers, the poſſibility of

ſpecifics, in a limited ſenſe, may be rationally, though *hypothetically*, admitted. But in other maladies, the cauſes of which depend upon a variety of concurrent circumſtances, and the cure of which, in different individuals, frequently requires very oppoſite remedies, as in the Dropſy, the various ſpecies of Colic, the almoſt infinite variety of Conſumptions, &c. &c. a ſpecific remedy is an impudent burleſque upon the common ſenſe of mankind. Thoſe who are but imperfectly acquainted with the various cauſes from which the ſame diſorder originates in different individuals, can never entertain ſuch a vulgar and dangerous notion. They will eaſily perceive, how much depends upon aſcertaining with preciſion the ſeat and cauſe of the affection, before any medicine can be preſcribed with advantage or ſafety :—even life and death, I am concerned to ſay, are too often decided by the *firſt ſteps* of him, who offers or intrudes his advice upon a ſuffering friend.

The following inſtances will ſhew the danger attending the precipitate application of the ſame medicine in ſimilar diſorders.—A perſon violently troubled with the colic took a glaſs of juniper ſpirits, commonly called Hollands, from which he received almoſt inſtantaneous relief, as the affection proceeded from flatulency. Another perſon, who found himſelf attacked with ſimilar pains, was induced by the example of his friend to try the ſame expedient; he took it without heſitation, and died in a few hours after.—No wonder that the conſequences here were fatal,

as the colic in the latter case was owing to an inflammation in the intestines.—A third person was afflicted with a colic, arising from poisonous mushrooms, which he had inadvertently swallowed; the immediate administration of an emetic, and after it, some diluted vegetable acid, restored him to health. A fourth person had an attack of this malady from an *encysted hernia* or inward rupture. The emetic, which relieved the former patient, necessarily proved fatal to the latter; for it burst the bag of inclosed matter, poured the contents within the cavities of the abdomen, and thus speedily terminated his existence. Again, another had by mistake made use of arsenic, which occasioned violent pains, not unlike those of a common colic. A large quantity of sweet oil taken internally was the means of his preservation; whereas the remedies employed in the other cases would have been totally ineffectual. Here I willingly close a narrative, the recital of which cannot but excite the most painful sensations. To lengthen the illustration would lead me too far beyond my prescribed limits: for cases of this nature happen so frequently, that it would be easy to extend the account of them, by a long catalogue of interesting but fatal accidents.

What is more natural than to place confidence in a remedy, which we have known to afford relief to others in the same kind of affection? The patient anxiously inquires after a person who has been afflicted with the same malady. He is eager to learn the remedy

that has been uſed with ſucceſs. His friend or neighbour imparts to him the wiſhed-for intelligence. He is determined to give it a fair trial, and takes it with confidence. From what has been ſtated, it will not be difficult to conceive, that if his caſe does not exactly correſpond with that of his friend, any *chance remedy* may be extremely dangerous, and even fatal.

The phyſician is obliged to employ all his ſagacity, ſupported by his own experience, as well as by that of his predeceſſors; and, nevertheleſs, is often under the temporary neceſſity of diſcovering from the progreſs of the diſeaſe, what he could not derive from the minuteſt reſearches. How then can it be expected, that a novice in the art of healing ſhould be more ſucceſsful, when the whole of his method of cure is either the impulſe of the moment, or the effect of his own credulity? It may be therefore truly ſaid, that life and death are frequently intruſted to chance.*

From what has been premiſed, it may be confidently aſſerted, that a noſtrum or an univerſal remedy is as great a *deſideratum* as

* The late Dr. HUXHAM, a phyſician of great celebrity, in ſpeaking of *Aſclepiades*, the Roman empiric, ſays: "This man from a *declaimer* turned *phyſician*, and ſet himſelf up to oppoſe all the phyſicians of his time; and the novelty of the thing bore him out, as it frequently doth the *Quacks* of the preſent time; and ever will, *whilſt the majority of the world are fools.*"

In another place, Dr. Huxham thus curiouſly contraſts the too timid practice of ſome regular phyſicians, with the hazardous treatment, which is the leading feature of Quacks: "The timid, low, inſipid practice of ſome, is almoſt as dangerous as the bold, unwarranted empiriciſm of others; time and opportunity, never to be regained, are often loſt by the former; whilſt the latter, by a *bold puſh*, ſends you off the *ſtage* in a moment."

the philoſopher's ſtone. The abſurd idea of an univerſal medicine can only obtain credit with the weak, the credulous, or the ignorant.

One of the moſt unfortunate circumſtances in the hiſtory of ſuch medicines, is the inſinuating and dangerous method, by which they are *puffed* into notice. And as we hear little of the baneful effects which they daily muſt produce, by being promiſcuouſly applied, people attend only to the extraordinary inſtances, perhaps not one in fifty, where they have afforded a temporary or apparent relief. It is well known, that the more powerful a remedy is, the more permanent and dangerous muſt be its effects on the conſtitution; eſpecially if it be introduced like many Patent-Medicines, by an almoſt indefinite increaſe of the doſes.

There is another conſideration, not apt to ſtrike thoſe who are unacquainted with the laws of animal economy.—When we intend to bring about any remarkable change in the ſyſtem of an organized body, we are obliged to employ ſuch means as may contribute to produce that change, without affecting too violently the *living powers*; or without extending their action to an improper length. Indeed, the patient may be gradually habituated to almoſt any ſtimulus, but at the expenſe of palſied organs, and a broken conſtitution.*

* An Italian Count, uncommonly fond of ſwallowing medicines, found at length that he could take no more. Previous to his death he ordered the following inſcription to be placed on his tomb:

"*I was once healthy; I wiſhed to be better; I took medicine, and died.*"

Such are the melancholy effects of impoſture and credulity! Were it poſſible to collect all the caſes of ſacrifices to this myſterious infatuation, it is probable that their number would exceed the enormous havoc made by gunpowder or the ſword.

A popular writer, Dr. BUCHAN, makes the following juſt remark on the ſubject in queſtion: "As matters ſtand at preſent," ſays he, "it is eaſier to cheat a man out of his life, than of a ſhilling, and almoſt impoſſible either to detect or puniſh the offender. Notwithſtanding this, people ſtill ſhut their eyes, and take every thing upon truſt, that is adminiſtered by any pretender to Medicine, without daring to aſk him a reaſon for any part of his conduct. Implicit faith, every where elſe the object of ridicule, is ſtill ſacred here."

Analyſis of Faſhionable Complaints.

If theſe abuſes of medicine be of conſequence, how much more ſo are certain manners, habits, and cuſtoms, which the united efforts of the Faculty will never effectually remove or ſuppreſs, unleſs aſſiſted by the female guardians of helpleſs infancy. That I may not be miſunderſtood with reſpect to the real intention of this addreſs to the fair ſex, I beg leave previouſly to obſerve, that the following remarks apply chiefly to certain claſſes of the community, among whom a due degree of attention is but rarely paid to the ſkin of their offſpring.

The greater number of our faſhionable complaints and affections are nearly related

to each other. The gout, formerly a regular but rare diſeaſe, which attacked only the external parts of perſons advanced in years, has now become a conſtitutional indiſpoſition, a juvenile complaint, torturing the patient in a thouſand different forms. The famous *Podagra* and *Chiragra* of our anceſtors are now nearly obſolete, and inſtead of the gout in the *feet* or *hands*, we hear every day of the nervous gout, the gout in the *head*, and even the fatal gout in the *ſtomach*. No rank, no age, no mode of life ſeems to be exempt from this faſhionable enemy.—The next and ſtill more general malady of the times, is *an extreme ſenſibility to every change of the atmoſphere; or rather, a conſtantly ſenſible relation to its influence.* We are not only more ſubject to be affected with every current of air, every change of heat and cold, but the feelings of ſome are ſo exquiſitely delicate, that in a cloſe apartment, nay in bed, they can determine with accuracy the ſtate of the weather, as well as the direction of the wind. By conſulting their bodily ſenſations, theſe *living barometers* announce more correctly than the artificial ones, not only the preſent, but even the future changes of the weather. I could never have believed, that this additional ſenſe, which is only of modern origin, could be ſo much improved, had I not frequently witneſſed the ſenſations of certain patients, when a cloud is floating over their heads :—a talent ſo peculiar to our age, that it would undoubtedly excite ſurpriſe, but no envy, in our leſs refined forefathers. In a climate, where the weather

changes every day, and almoſt every hour, it may be eaſily imagined, how dependent, frail, and tranſitory, muſt be the health of the wretched poſſeſſors of this *new* ſenſe; and that beings ſo organized cannot warrant, for a ſingle hour, their ſtate of health, their good-humour, or their phyſical exiſtence. Is it not then very probable, that many ſtrange and inconſiſtent events of our days may have their ſecret foundation in this dependence on the weather?—In judging of man and his actions, we ought firſt to obſerve the ſtate of the barometer; as our more ſuperſtitious anceſtors made the celeſtial conſtellations the criterion in their prognoſtics.

Not leſs characteriſtic of the preſent generation, but more painful, are the faſhionable nervous and hypochondriacal diſeaſes. Theſe are formidable, inſidious tormentors, which not only deſtroy our phyſical well-being, but alſo envenom our tranquillity and contentment, and cloud our faireſt proſpects of happineſs. Without depriving us of life, they render it an inſupportable burthen; without inducing death, they make him a welcome viſitor.

It is unneceſſary to detail the diverſified ſhapes, in which theſe maladies preſent themſelves. Let it ſuffice to obſerve, that however intimately the mind appears to be connected with theſe phenomena, we can nevertheleſs account for them from phyſical cauſes. They have rapidly increaſed with the propagation of the gout, and experience ſhews, that they frequently alternate with it, in the ſame in-

dividual patient. It is highly probable, therefore, that they are of a ſimilar nature with the gout; and that they originate from the ſame ſource, which is peculiar to our age. Cloſely connected with the gout, and likewiſe with the hypochondriaſis, how frequently do we obſerve the hæmorrhoids, formerly a diſeaſe of the aged, now the companion of youth, and almoſt a general complaint.

The laſt claſs of our faſhionable diſeaſes includes all thoſe affections of the ſkin, which are known by the name of *eruptions*, *diſcolorations*, *efflorescences*, *ſcorbutic taints*, &c. Of late, theſe have alarmingly increaſed, and appear daily to ſpread every where, like noxious weeds. Even in the higher ranks, where neither a poor diet, nor want of attention to cleanlineſs, can be aſſigned as cauſes, we frequently obſerve perſons, whoſe ſkin announces bad health, and on whom medicine can have no effect. Phyſicians of different countries complain of new and unheard-of cutaneous diſorders, of an extremely malignant tendency; and if the ſpreading of them be not checked in time, Europe will perhaps once more be viſited with that malignant and filthy diſeaſe, the Leproſy.

It is however not ſufficient to give a bare catalogue of theſe ſingular affections. I ſhall, therefore, attempt to trace them to their ſource; to ſhew that they can be eaſily prevented; and to point out the moſt likely means by which ſo deſirable an event may be accompliſhed.—It is to you, guardians of future, and I hope hardier races, that I now ap-

peal—it is your aid I ſolicit in ſo important a meaſure of national and domeſtic policy.

On the Nature and Functions of the Skin.

Much as we hear and ſpeak of *bathing*, and of the great attention at preſent paid to cleanlineſs, I am bold to affirm, that the greater number, if not the whole of our faſhionable complaints, originate from the want of care and proper management of the *ſkin*. Through unpardonable neglect in the earlier part of life, eſpecially at the age of adoleſcence, the ſurface of the body is ſo unnaturally enervated by conſtant relaxation, that it oppreſſes, and, as it were, confines our mental and bodily faculties; promotes the general diſpoſition towards the complaints above alluded to; and, if not counteracted in time, muſt produce conſequences ſtill more alarming and deplorable.

We often hear people complain, that *their ſkin is uneaſy*; a complaint, which I fear is but too prevalent among thoſe, who give themſelves little trouble to inquire into its origin. —But how is it poſſible, I hear many perſons aſk, that the ſkin, which is a mere covering of the body, to ſhelter it from rain and ſunſhine, can have ſuch influence over the whole frame? I ſhall venture to explain this problem, and hope to impreſs ſuch as are inclined to be ſceptical, with more reſpect for that part of the human body.

The ſkin unites in itſelf three very eſſential functions. It is the organ of the moſt exten-

ſive and uſeful ſenſe, that of *touch*; it is the channel of *perſpiration*, the principal means which Nature employs to purify our fluids; and through the moſt admirable organization, is enabled to *abſorb* certain ſalutary parts of the ſurrounding atmoſphere, and to guard us againſt the influence of others of an injurious tendency. For this purpoſe, innumerable nerves and veſſels are diſperſed throughout the ſkin, which are in the continual act of feeling, and at the ſame time of ſecreting and volatilizing noxious particles, and abſorbing thoſe containing vital principles. It has been proved by accurate calculations, that the moſt healthy individual daily and inſenſibly perſpires upwards of three pounds weight of ſuperfluous and hurtful humours. It may therefore be confidently aſſerted, that no part of the body is provided with ſo many and important organs, by which it is connected with almoſt every operation performed in animal life, as the ſkin. It is this, which places us in the moſt immediate connexion with the ſurrounding atmoſphere, which through that channel particularly affects us, and exerts its influence on our health:—we further feel, directly through the ſkin, the qualities of the air, heat, cold, preſſure, rarefaction, &c.: and hence we experience, at leaſt in their influence, other much more ſubtle and leſs known qualities, of which I ſhall only mention the electric and magnetic fluids. From the ſpiritual and highly penetrating nature of theſe fluids, we may eaſily conjecture, how conſiderable a ſhare they muſt have in the princi-

ple of vitality, and of what important uſe the organ is, through which they affect us.

Important as the ſkin is to external life, it is no leſs ſo to the internal economy of the body, where it appears to be peculiarly deſigned to preſerve the great equilibrium of the different ſyſtems, by which the human frame is ſupported in its vital, animal, and ſexual functions.—If any ſtagnation, accumulation, or irregularity ariſe in the fluids, the ſkin is the great and ever-ready conductor, through which the ſuperfluous particles are ſeparated, the noxious volatilized, and the fluids, ſtagnating in their courſe, ſet at liberty; a canal being at the ſame time opened for the removal of thoſe humours which, if they ſhould get acceſs to the vital parts, ſuch as the heart and the brain, would cauſe inevitable deſtruction. By the proper exerciſe of this organ, many diſeaſes may be ſuppreſſed in their early ſtages; and thoſe which have already taken place may be moſt effectually removed. No diſeaſe whatever can be removed without the co-operation of the ſkin. The nature and conſtitution of this organ moſt certainly determine either our hope or apprehenſion for the ſafety of the patient. In the moſt dangerous inflammatory fevers, when the proſpect of recovery is very faint, a beneficial change of the ſkin is the only effort, by which Nature, almoſt overcome, relieves herſelf, and ejects the poiſon in a ſurpriſing manner, frequently in the courſe of one night. The greateſt art of a phyſician, indeed, conſiſts in the proper management of this extenſive or-

gan, and in regulating its activity, where occaſion requires. To mention only one circumſtance; it is well known to thoſe who have experienced the beneficial effects of a ſimple bliſter, that its ſtimulus, like a charm, has frequently relieved the moſt excruciating pains and ſpaſms in the internal parts.

Cleanlineſs, *flexibility* and *activity* of the ſkin are, according to the obſervations premiſed, the principal requiſites to the health of individuals, as well as of whole nations. But inſtead of contributing to its improvement, we generally pay very little attention to it, except to the ſkin of the face and hands, which are too often made the *fallacious* index of health. I am convinced, however, that moſt of the patients and valetudinarians, who take ſo much pains to refreſh and fortify the *internal* parts of their body, by invigorating potations, rarely, if ever, pay any regard to their *external* ſurface;—an object of equal importance, and perhaps ſtanding in much greater need of corroborants than the former. Hence it happens, that the ſkin of convaleſcents is obſerved to be particularly relaxed and obſtructed; that they are liable to continual colds, upon the leaſt change of temperature; and that every day of their recovery renders them more ſubject to relapſes.

In this country, the children of people in the middling and lower ranks are perhaps better managed, than in moſt of the countries upon the Continent; becauſe frequent and daily bathing is, to my certain knowledge, no where ſo generally practiſed as in England.

As ſoon, however, as children attain a certain age, this practice is again as generally neglected: after the tenth or twelfth year of age, the ſurface of the body is very little attended to. Thus a foundation is laid for numberleſs evils, and particularly for that ſcorbutic taint in the human ſyſtem, which now almoſt univerſally prevails, and which is more or leſs connected with other and more faſhionable complaints.—As we advance further in years, this diſpoſition of the ſkin increaſes ſtill more, particularly from the mode of life purſued in the higher ranks. We then begin to accuſtom ourſelves to ſedentary habits, to think, and to partake of the pleaſures of life. The lady, the man of fortune, and the ill-fated man of letters, all of them require *more active* exerciſe, than they actually take, which alone can promote a free perſpiration, and enliven the ſurface of the body; but, by their indolent habits, the whole machine ſtagnates, and the ſkin becomes contracted and debilitated.

The huſbandman, indeed, labours diligently; and though, by the ſweat of his brow, his ſkin preſerves more life and activity, it is neither kept ſufficiently clean, nor prevented from being obſtructed by perſpirable matter. The artiſt and manufacturer carry on their purſuits in a ſedentary manner, and in a confined, impure air; the latter, in the duties of his occupation, generally employs unwholeſome articles, ſo that at length he loſes the uſe of this organ entirely, in ſome parts of the body. The voluptuary and the glutton do not ſuffer leſs than the former, as they impair the

energy of the skin by excesses of every kind, and take no precautions to preserve its elastic texture.—Our usual articles of dress, flannel excepted, are not calculated to promote a free perspiration;—our coal-fires, and still more the large potations of *warm* liquors, contribute greatly to relax the skin. If we add to this list of predisposing causes, our inconstant climate, which at one hour of the day braces, and at another relaxes the surface of the body, which alternately heats and cools it, and consequently disturbs its uniform action; it will be easily understood, that the skin must for these reasons be almost generally vitiated, and that it really is a leading source of many of our fashionable indispositions.

When the sensation of the surface is impaired; when the myriads of orifices, that are designed for the continual purification and renovation of our fluids, are obstructed, if not closed; when the subtle nervous texture is nearly deprived of its energy, so that it becomes an *impenetrable coat of mail*, is there any reason to wonder, that we are so often harassed by a sense of constraint and anxiety, and that this uneasiness, in many cases, terminates in a desponding gloom, and at length in complete melancholy?—Ask the hypochondriac, whether a certain degree of cold, paleness, and a spasmodic sensation in the skin, do not always precede his most violent fits of mental debility; and whether his feelings are not most comfortable, when the surface of his body is vigorous, warm, and perspires freely? In short, the degrees of insensible per-

ſpiration are to him the ſafeſt barometer of his ſtate of mind. If our ſkin be diſorganized, the free inlets and outlets of the electric, magnetic, and other matters, which affect us at the change of the weather, are inactive. Thus the origin of extreme ſenſibility towards the various atmoſpheric revolutions, is no longer a myſtery. For, in a healthy ſurface of the body, no inconvenience will follow from ſuch changes.—If we further advert to thoſe acrimonious fluids which, in an imperfect ſtate of perſpiration, are retained in our body, and which ſettle upon the moſt ſenſible nerves and membranes,—we ſhall better apprehend, how cramps or ſpaſms, the torturing pains of the Gout and Rheumatiſm, and the great variety of cutaneous diſeaſes, have of late become ſo obſtinate and general.

The equilibrium of the fluids, and the circulation of the blood, are alſo determined in no ſmall degree by the ſkin; ſo that if theſe fluids become thick and languid, the whole momentum of the blood is repelled towards the interior parts. Thus a continual plethora, or fulneſs of the blood, is occaſioned; the head and breaſt are greatly oppreſſed; and the external parts, eſpecially the lower extremities, feel chilly and lifeleſs.

In warm climates, in Italy for inſtance, the hæmorrhoids, a very diſtreſſing complaint, are but rarely met with, notwithſtanding the luxurious and ſenſual mode of life of the inhabitants; becauſe perſpiration is always free and unchecked: while among us perſons are found, who devote the whole of

their attention to the cure of that troublesome disorder.

May we not infer, from what I have thus advanced, that the use of baths is too much neglected, and ought to be universally introduced? It is not sufficient, for the great purposes here alluded to, that a few of the more wealthy families repair every season to watering-places, or that they even make use of other modes of bathing, either for their health or amusement. A very different method must be pursued, if we seriously wish to restore the vigour of a degenerated race. I mean here to inculcate the indispensable necessity for *domestic baths*, so well known among the ancients, and so universally established all over Europe, a few centuries ago, and which were eminently calculated to check the further progress of the leprosy;—a disease which, though slower in its effects, is not less distressing than the plague itself.

Much has been said and written upon the various methods, and the universal medicines, proposed in different ages, by different adventurers, professedly to diminish the inherent disposition to disease, and to give a new and renovating principle to the human frame. At one time they expected to find it in the philosophic and *astralian salts*, at another in Magnetism and Electricity;—some fanatics pretended to have discovered it in the light of the moon, others in celestial beds;—but, if I may venture to deliver my opinion, we may search for it most safely and conveniently

in every clear fountain—in the bosom of ever young, ever animating nature.

Bathing may be also considered as an excellent specific for alleviating both mental and bodily sufferings. It is not merely a cleanser of the skin, enlivening and rendering it more fit for performing its offices; but it also refreshes the mind, and spreads over the whole system a sensation of ease, activity, and pleasantness. It further removes stagnation in the larger as well as in the capillary vessels; it gives an uniform free circulation to the blood, and preserves that wonderful harmony in our interior organs, on the disposition of which our health and comfort so much depend. A person fatigued, or distressed in body and mind, will derive more refreshment from the luxury of a lukewarm bath, and may drown his disquietude in it more effectually, than by indulging in copious libations to Bacchus. The bath may be equally recommended as an admirable retiring place, to evade, for a time, the influence of the atmosphere; and persons that have the misfortune to be too susceptible of external impressions, would find no small benefit, were they to repair in thick and sultry weather to the bath, where they breathe in an element less loaded with noxious particles.

The wish to enjoy perpetual youth, is one of the most predominant and pardonable. Though it cannot be rationally asserted, that bathing will confer continual youth, yet I will hazard an opinion, that it has a very uncommon and superior tendency to prolong

that happy ſtate; it preſerves all the ſolid parts ſoft and pliable, and renders the joints of the body flexible. Hence it powerfully counteracts, what I preſume to call an inſidious diſeaſe, viz. *age*, which operates by gradually exhauſting the humours, and depriving the conſtituent parts of the human frame of their elaſticity. It is no leſs certain, that bathing is one of the moſt efficacious means of preſerving beauty; and that thoſe nations, among which bathing is a prevailing practice, are uſually the moſt diſtinguiſhed for elegance of form and beauty of complexion.

A moderate deſire to improve and beautify the ſurface of the body, is far from being a frivolous purſuit. It excites as much intereſt, and is productive of as beneficial conſequences, as the exertions of many a pſeudo-philoſopher, who devotes the toil of years, to arrange his notions in a certain ſyſtematic form, and who yet is not fortunate enough to attain the great object of his wiſh. I have had frequent opportunities to obſerve, that the deſire of beauty, when not inordinate, may prove the ſource of many virtuous and laudable purſuits, and that it may be greatly inſtrumental to the preſervation of health. I am alſo perſuaded, that this deſire is often purſued by methods not the moſt proper, and that from not having a juſt knowledge of beauty, we make many valuable ſacrifices, not only of things relating to health, but ſometimes of life itſelf. Inſtances are not uncommon, of young perſons attempting to bleach their ſkins, and beautify their perſons,

by avoiding a free air, using a mild and weakening diet, long fasting, long sleeping, warming their beds, &c. &c.; but, alas! the event does not answer their expectation,—they lose both health and bloom!—Eating chalk, drinking vinegar, wearing camphorated charms, and similar destructive means have been resorted to, by other more daring adventurers, but with no better success. Those I have last enumerated, may be called the *minor cosmetics*: others of a more formidable nature, I almost hesitate to mention, as they are unquestionably the most deleterious substances we are acquainted with. *Mercury* and *lead*, manufactured in various forms, are unhappily too common ingredients in many of our *modern* cosmetics, whether they consist of lotions, creams, powders, paints or ointments. That these substances can be communicated to the circulating fluids, through the skin as well as by the stomach, requires, I should suppose, no further proof, after the doctrines already advanced on this subject. *Lead*, in particular, if once introduced into the system, though in the smallest proportions, cannot be removed by art, and never fails to produce the most deplorable effects; such as palsy, contraction and convulsion of the limbs, total lameness, weakness, and the most excruciating colic pains. Besides these more obvious effects, the frequent external use of lead and mercury, as cosmetics, occasions cramps in every part of the body, faintings, nervous weakness, catarrhs, tubercles in the lungs and intestines, which occur together or separately, according

to the different circumſtances, till at length a conſumption, either pulmonary or hectic, cloſes the dreadful ſcene.

Beauty of the ſkin, the ſubject under conſideration at preſent, is but another term for a ſound and healthy ſkin ;—a pure mirror of the harmony of the internal parts with their ſurface, or, if I may be allowed the expreſſion, "*it is viſible health.*"

There ſubſiſts ſo intimate a relation between our interior and exterior veſſels, that almoſt every error or irregularity in the organs within, ſhows itſelf firſt of all on the ſurface without, and particularly on the face.—How often are we ſtruck at the countenance of a perſon, who thinks himſelf in perfect health, but whoſe illneſs, the reſult of ſome morbid cauſe concealed in the body, juſtifies in a few days the ſerious apprehenſions we entertained at our laſt interview. Nature has wiſely ordained, that the firſt appearance of internal irregularities is indicated by the countenance ; but to what uſe do we generally apply this index ?—We refuſe to avail ourſelves of her beneficent intimation ; and the continued uſe of pernicious ſubſtances, inſtead of promoting the object we have in view, ultimately tarniſhes and impairs that beauty, which we meant to adorn and preſerve. We imagine it in our power to improve the ſkin, without attending to the purity of the fluids, although it is indebted to them for its very exiſtence ; and yet ſhould ſmile at a perſon, who attempted to cleanſe an impure tongue, by conſtantly ſcraping it, when a diſordered ſtomach was the real cauſe of that impurity.

From the tenor of the preceding positions, I hope for indulgence, when I venture to pronounce every cosmetic, whose composition is kept a secret from the public, false and fraudulent ware. The three great and really effectual SUBSTITUTES FOR COSMETICS,* which I would recommend, are the following: *First*; due attention to *insensible perspiration*;—an important process, by which nature, if duly assisted, will not fail to expel all acrimonious or useless particles. By this, too, the surface of the body will be kept in a constant atmosphere of softening exhalations,—a species of volatile vapor-bath, and the most efficacious means of preserving it soft and pliant, and of animating it with the colour of life. The next circumstance to be attended to, is the *purity of the fluids*; this depends equally on a free *perspiration*, and on a vigorous state of *digestion*. The third requisite to a fair, healthful complexion, is an *uniform* distribution of the fluids; or in other words, *a free and un-*

* To such readers, whether male or female, as are *determined* to make use of *cosmetics*, instead of attending to the more effectual means to preserve the bloom of the skin, it may be of service to point out one or two *external applications*, in order to prevent them from resorting to the dangerous and destructive contrivances of Quacks.—According to Dr. WITHERING, a physician of great eminence at Birmingham, an infusion of horse-radish in milk makes one of the safest and best cosmetics. Another preparation for clearing the skin of pimples and *recent eruptions*, if assisted by gentle aperient medicines, is the fresh expressed juice of house-leek, mixed with an equal quantity of sweet milk or cream.—Yet all contrivances whatever, to answer this purpose, are absurd and nugatory, if the *inward* state of the body be neglected, or if they be looked upon as *specifics of themselves*. Such things do *not* exist in nature; and we might as well try to bleach the face of a Negro, as to remove any scorbutic or other eruptions from the face, without bestowing proper attention on the whole state of the body, and particularly the fluids, from which these irregularities derive their origin.

reſtrained circulation of the blood; as the very pureſt fluids, when profuſely propelled to the face, are productive of diſagreeable conſequences, ſuch as unnatural redneſs, fluſhings, tumid appearances, &c. of which ladies of a ſedentary life are ſo apt to complain.

To theſe three general obſervations, I think, it may be neceſſary to ſubjoin a few particular injunctions, relative to the improvement of the ſkin, as connected with a ſtate of good health.—Carefully avoid all *immoderate* and *violent dancing*, as the ſudden alternations of heat and cold, not only impair the general ſtate of the ſkin, but are likewiſe of the greateſt detriment to beauty.—Abſtain from the too frequent and too copious uſe of heating liquors of every kind, particularly punch and ſtrong wines. There is ſcarcely any thing which is, in my opinion, more deſtructive of the bloom of youth and manhood, than this *liquid fire*, which fills the blood with inflammable particles, propels them towards the face, parches the ſkin, renders it ſpotted, and lays the foundation of that incurable diſeaſe, which is ſometimes figuratively called *copper in the face*. Neither ſugar, nor any additional ingredient to gratify the palate, can deprive theſe liquors of their noxious qualities, ſo that even the moſt agreeable of theſe ſeductive potions is attended with conſiderable danger.

Avoid, likewiſe, every exceſs in *hot* drinks, as coffee, chocolate, and tea, particularly the laſt, in which the people of this country are given to indulge, more than in any other beverage. I ſcarcely dare venture to impeach

this favourite *ſolace* of our morning and evening hours; but with all due deference to the comforts of the domeſtic circle, I conſider it as my duty to denounce the too liberal uſe of this liquor, as not a little prejudicial to the fairneſs and purity of the ſkin. Tea taken hot, and in immoderate quantities, not only has a tendency to weaken the organs of digeſtion, but cauſes fluctuations and congeſtions in the humours of the face, and frequently brings on a degree of debilitating perſpiration. Let us conceive the ſtomach inundated with a portion of warm water, juſt at the time of digeſtion; its concoctive powers are literally drowned, at the very inſtant when their aſſiſtance is moſt required; and, inſtead of a pure balſamic *chyle*, or alimentary fluid, it prepares crude, and acrimonious humours, which can only generate an unhealthy maſs of blood. Here, I cannot impreſs upon the attentive reader, in terms ſufficiently ſtrong, the following truth: *that a healthy ſtomach only can produce healthy and uncontaminated fluids*; and that two thirds of what we call acrimony, or ſharpneſs of humours in the ſyſtem, proceed from a languid ſtomach, and irregular digeſtion.—If therefore the tea be made too weak, it will operate merely as warm water, and like it will greatly relax the coat and membranes of the ſtomach;—if made too ſtrong, it will give an unnatural heat to the body, prove a dangerous ſtimulus to the nerves, occaſion palpitations of the heart, univerſal trembling, cramps, and a number of other complaints, which it is needleſs to enumerate. That theſe

effects do not take place, during the first months or years of indulging ourselves in the intemperate use of hot and strong tea, is no argument to controvert this position; they will, either sooner or later, unavoidably follow.

I shall but slightly touch here, on another subject, scarcely of less importance than the former; namely, the various articles prepared by the pastry-cook and confectioner. These dainties would be less objectionable, if any method could be devised of baking them without the pernicious ingredients of yeast and fat, substances which load the stomach with a glutinous slime and rancid matter, which obstruct the glands of the abdomen, particularly those of the mesentery, and which have a strong tendency to produce the cutaneous diseases before mentioned.

On the Physical Education of Children.

The physical education * of infants unquestionably forms an object of the first importance. The great disproportion subsisting between healthy and diseased children, together with the deplorable mortality which occurs among the latter, too plainly evince, that their *bodily* welfare is not sufficiently attended to.

There is little room to doubt, that by a more rational mode of nurture, during the

* To some readers it may be necessary to explain, that by *physical education* is meant the bodily treatment of children: the term *physical* being applied in opposition to *moral*.

firſt years of infancy, many ſubſequent diſeaſes might either be wholly prevented, or at leaſt greatly mitigated. Nothing perhaps would contribute more to meliorate education in general, than, what has been long and much wanted, a ſerious and minute attention of the Faculty to this particular branch of medical ſtudy: which at preſent, I am concerned to ſay, is almoſt totally neglected.

The few books extant on this ſubject are neither written on ſcientific principles, nor calculated, by their manner and ſtyle, to afford plain and popular inſtruction. It is not enough for profeſſional men to plan ſyſtems of education in their ſtudy-rooms;—let them alſo demonſtrate in practice, that they are familiarly acquainted with the *true* method of educating children;—a method which, in my opinion, implies ſomewhat more than merely preſcribing and adminiſtering medicines.

So long as the nurſing of children remains excluſively in the hands of common midwives and nurſes, it is rather a matter of ſurpriſe, that ſo many infants ſhould ſurvive the age of childhood.—We ought therefore, above all things, to inquire into the monſtrous prejudices prevailing in this eſſential part of domeſtic management, as the firſt ſtep towards their extirpation.

How great would be my ſatisfaction, if, by the following ſtrictures, I ſhould be able to prevail upon ſome intelligent mothers, who poſſeſs ſufficient fortitude, to throw off the bondage of old cuſtoms, or modern faſhions,

and to return to the path of ſimple nature!—In a ſyſtem of practical education, it is a judicious precept, which cannot be too much inculcated, *to omit rather than to undertake, or be too officious, in the phyſical treatment of infants.*

From the difficulty of diſcovering the true cauſe and ſeat of the complaints of children, eſpecially if accompanied with any particular ſymptoms in the excretory veſſels, it is very uſual to adminiſter a *gentle laxative* or *emetic*, upon the ſlighteſt occaſion.—It would lead me too far to examine, in detail, the many bad conſequences reſulting from ſo abſurd and detrimental a practice. I cannot, however, forbear from remarking, that by dealing conſtantly in aperient medicines (a ſtrange infatuation among the vulgar!) the future diſeaſes of the child aſſume a particular character of the *gaſtric* kind—the juice of the ſtomach, which ſerves to concoct our food, being vitiated. As the operation of the laxatives is in a manner mechanical, by impelling the fluids, and particularly thoſe of the mucous kind, towards the ſtomach and bowels, and cauſing them to accumulate in a greater degree than uſual, it will be eaſily underſtood, that by the frequent repetition of this ſtimulus, the gaſtric juice will be rendered unfit to effect the proper ſolution of food in the ſtomach. For the ſame reaſon, perſons ſubject to frequent coſtiveneſs ſoon begin to complain of indigeſtion, when they once habituate themſelves to take ANDERSON'S or any other aperient pills: for by them the ſtomach is converted, as it were, into a field of battle, where all the ir-

regularities, that take place in the syſtem, are left to fight their way; where the limits of diſeaſe and health, nay the alternative of life and death, are to be finally determined. That this however is not the moſt proper place for ſuch a conteſt, requires no demonſtration. The ſtomach is appointed by nature for very different purpoſes; it is the only organ of nouriſhment and digeſtion; the ſource of reſtoration and health. But how can it effectually anſwer this end, if it ſerves, at the ſame time, as the conſtant laboratory of diſeaſes? As it is always in a ſtate of impurity, it cannot act with uniform energy and a ſufficient degree of elaſticity, to prevent frequent irregularities in digeſtion;—hence ariſe bad humours, hypochondriac affections, and nervous debility; all of which, I have reaſon to fear, are, more or leſs, conſequences of tampering with medicines, eſpecially in the period of childhood. I am further induced to think, though it may to ſome appear rather a bold idea, that more children are deſtroyed by the abſurd practice of loading their tender ſtomachs with every ſort of traſh, and afterwards relieving them by repeated doſes of phyſic, than by any *natural* proceſs. This likewiſe accounts for the great number of children who die *in towns*, at an early age, before they become inured to ſuch ſevere attacks made on their digeſtive organs.

In order to check, and, if poſſible, to prevent, this general tendency to diſeaſes; to meliorate the conſtitution of children, by producing a regular circulation of the fluids;

and to direct the exuding morbid matter more universally and uniformly through the pores of the skin, a more effectual remedy cannot be suggested, than that of *frequent bathing*, and a very limited use of aperient medicines.

These observations are not conjectural, but founded on experience, and it gives me pleasure to add, that they are confirmed by many physicians of eminent abilities, and extensive practice.

Frequent bathing in infancy is a powerful mean of counteracting and suppressing the disposition to stomachic and bilious complaints, which, in our days, are uncommonly prevalent among children and adults, and which are frequently accompanied with diversified nervous symptoms. By the efforts of nature, to throw off malignant humours by the surface of the body, in consequence of a proper use of the bath, many infantile diseases may be safely prevented, catarrhs suppressed, or greatly mitigated, teething rendered easy, and the whole physical condition of the child considerably improved.

It becomes here a question, which is the most proper degree of heat in using the bath for children.—I shall venture to pronounce, upon the authority of the best modern authors, confirmed by my own experience and observation, that the *lukewarm bath*, between 84 and 96° of Fahrenheit's thermometer, rather more than new-milk warm, is, upon an average, the most suitable temperature. An erroneous notion too much prevails, that the

good effects of bathing are principally to be aſcribed to the *cold bath*. The uſe of any bath, indeed, whether cold or warm, that is, the ſtimulating impreſſion excited by the water, is, of itſelf, an excellent tonic, ſerving to brace and invigorate the whole ſyſtem. Not to mention the comfortable ſenſations, that muſt neceſſarily attend the cleanſing and opening ſo many millions of pores, with which the ſkin is provided, it is farther remarkable, that water, formerly conſidered as a *ſimple* element, is now pretty generally underſtood to be a *compound* body, conſiſting of *oxygen* and *hydrogen*, or vital and inflammable air, the former of which, it is well known, promotes the proceſs of *reſpiration*, and literally feeds the vital principle in the human body. Although this aſſertion reſts chiefly on an hypothetical foundation, ſo much is certain, that a lukewarm bath, uſed for the legs alone, is found by experience to communicate new ſpirits to the weary traveller, almoſt inſtantly to remove the ſenſe of languor, and to re-animate all his faculties. *Bruce*, the Abyſſinian traveller, remarks, that in the intenſe heat of that country, a lukewarm bath afforded him more refreſhment and vigour, than a cold one. We ought farther to conſider, that infants are accuſtomed ſcarely to any other than a *warm* temperature. The cold bath belongs to the claſs of *heroic remedies*, and in its ſudden and vehement effects nearly reſembles electricity. It is moreover an axiom in medicine, that the means of ſtimulating and corroborating the ſyſtem,

ſhould be in proportion to the degree of vital power in the individual; that a faint ſpark may be extinguiſhed rather than kindled by too violent a concuſſion of air; and that a degree of ſtimulus and invigoration, which agrees with a firm and robuſt body, may prove deſtructive to one that is weak and tender. It might therefore be extremely hazardous to employ a remedy, in the delicate frame of infants, which even adults ſhould not reſort to without the greateſt precaution. I preſume to go a ſtep farther, and do not heſitate to ſay, that the uſe of the cold bath, as far as relates to the treatment of children, is even DANGEROUS. Its principal mode of operation is by contracting the whole ſurface of the body, and by cauſing a general repulſion of the fluids towards the internal parts. Hence in a young and infirm body, which has very little internal *reaction*, the neceſſary conſequence of cold bathing will be an unequal diſtribution of the fluids, a partial or local ſtagnation of them; and, what is worſt of all, an accumulation of humours in the head, by which infants are frequently injured, before it is in their power to complain.—The lukewarm bath, on the contrary, produces an uniform revolution and ſalutary purification of all the fluids. For theſe reaſons, I conſider the tepid bath as in every reſpect preferable, ſince it may be uſed ſomewhat cooler for ſtrong children, or warmer for thoſe of a weakly conſtitution, and the requiſite degrees of heat be regulated according to the increaſing age and ſtrength of the child. In ſummer, the water

intended for bathing ought to be expoſed the whole day to the rays of the ſun, which will impart to it an agreeable and congenial warmth. Rain, or river-water, is the moſt proper for this purpoſe; but if there be a neceſſity for uſing ſpring or well-water, it ſhould be previouſly ſoftened with a ſmall quantity of boiled water, in which a quarter of an ounce of ſoap has been diſſolved, with the addition of a little bran or oatmeal; or if milk can be had, it will be found a ſtill more uſeful ingredient. Here I would particularly recommend not to boil the *whole* quantity of the water to be uſed for bathing; as it would in that caſe be deprived of its aërial conſtituents, which are not without their importance in the bath.—During the firſt weeks and months, the child ſhould not be ſuffered to remain in the bath longer than five minutes, which time may be gradually increaſed to a quarter of an hour. During the whole proceſs of bathing, the body ſhould not remain inactive, but be gently rubbed with the hand, and afterwards cleaned with a ſoft ſpunge. It is of conſequence to attend to the point of time, when the child is taken out of the bath; for in almoſt every inſtance where warm bathing diſagrees with the child, it will be found owing to neglect in not wiping and drying the body with ſufficient expedition at this particular period. Hence it is highly neceſſary to keep warm cloaths in readineſs, in which the child ſhould be wrapped up, and dried, the very moment it is taken out of the bath. Every one in the habit of bathing muſt have

obſerved, that the evaporation of water on the ſkin excites penetrating and uncomfortable ſenſations of cold; and there is an aſtoniſhing difference of temperature between actually being in the water, and having water on the ſkin after quitting the bath. If, therefore, a child, from want of due precaution, be kept for ſeveral minutes with a naked, wet body, it will be liable to contract a cold, the more dangerous in its conſequences, as it immediately ſucceeds a ſtate, in which the body is warm and the ſkin open.

It ſhould be further obſerved, that bathing, immediately after a meal, or with a full ſtomach, is highly improper, if not dangerous, both in children and adults; nor is it adviſable, in rough weather, to carry a child into the open air too ſoon after bathing. The moſt proper time for uſing the bath is the evening, when the child can be removed to bed, as ſoon as it is completely dried.

There is another ſpecies of bath, equally indiſpenſable, which I will call the *Air-bath*; or the daily enjoyment of freſh air. This is uſually conſidered as a promenade, or walk of pleaſure; and as children cannot judge of its great utility, and the weather is not always favourable for excurſions, parents are ſometimes guilty of unpardonable neglect, in confining infants for whole days and weeks together within their rooms. But if air be eſſentially requiſite to animate the moſt ſubtle powers of man, it follows, that it is as neceſſary to the organs of life as food and drink; and that its ſalutary influence on the conſti-

tution does not so much depend on the state of it with respect to pleasantness and serenity, as on its freshness and constant renewal. Hence I would impress it on the reader, as a rule not to be departed from, *to let no day elapse, without affording the child an opportunity of imbibing the salubrious qualities of fresh air.* In the first months great precaution is necessary, and children born in spring or summer have in this respect no small advantages, as there is less danger in exposing them to the open air during the warm months, than there is in autumn and winter. In the milder seasons, too, violent winds, and moist weather, cannot be too carefully avoided. After the two first months of its existence, if the child has been duly habituated to fresh air, it may be safely carried out in *any* state of the weather: this ought to be regularly done every day, if it be only for half an hour, as it is one of the most nourishing cordials that can be given. I shall just notice here, in a cursory way, the great benefit which the eyes of children derive from this practice, and which, particularly at a time when complaints of weak and sore eyes are heard in almost every family, is of the utmost importance. It is an unquestionable fact, that the shortness of sight, and weakness of the eyes, so prevalent among the inhabitants of towns, is chiefly owing to the injudicious custom of confining children, during the first years of their lives, almost constantly within four walls; so that the eye, being accustomed to *near* objects only, becomes organized for a narrow view, and at length

is rendered incapable of forming the focus properly for *diſtant* objects. On the other hand, it is equally certain, that by an early and daily exertion of the organs of ſight, in beholding remote objects, in the open air, the circle of viſion is enlarged, the power of ſight increaſed, and a ſolid foundation laid for acquiring a clear and comprehenſive diſcernment of objects.

From the preceding obſervations, it will be readily admitted, that the proper and daily airing of the nurſery, *in winter as well as in ſummer*, is of no ſmall importance to the well-being of children. It has been proved by many fatal inſtances, that a confined and impure air is of itſelf capable of exciting the moſt violent convulſive ſymptoms, and conſequently is one of the principal cauſes, that ſo many infants die of convulſions, during the firſt months of their lives. Would it not be more eligible, to ſelect the moſt airy apartment in the houſe for a nurſery, than low and confined garrets, as is too frequently the caſe in large families? The room, in which children breathe, ſhould at leaſt be capacious and lofty, and expoſed to the cheering rays of the ſun, which not only influence the temper and ſpirits of children, but ſerve to purify the corrupted air in their apartments.

Perſons unaccuſtomed to reflect on this ſubject, can ſcarcely conceive, what ſalutary effects the ſimple means here recommended, namely, the early habit of waſhing, bathing, and daily airing, produce on the conſtitution, and phyſical formation of the child. The

habit of body, growth, and appearance of children, properly educated in this reſpect, will be totally different from thoſe, who are reared like foreign plants in a hot-houſe. To point out ſtill more forcibly the peculiar advantages attending the regimen here recommended, I ſhall exhibit a picture of ſuch children, not taken from fancy, but authorized by facts, and according with the experience of many modern obſervers, as well as my own, and that of a reſpectable phyſician in Germany, Profeſſor Hufeland of Jena, to whom I am greatly indebted for the following obſervations:

1. A child thus treated is more hardy and leſs affected by the viciſſitudes of climate and weather.

2. Its body is ſtraight and robuſt; its limbs are uniformly muſcular, and well proportioned.

3. The ſtages of evolution, in its different organs, take place in regular ſucceſſion;—no power, no capacity, outſtrips another; its teeth do not appear too ſoon, nor at irregular periods; the child does not begin to walk too early nor too late; and the ſame order is obſervable with regard to its ſpeaking. Even the mental faculties expand themſelves more regularly, that is, not too rapidly, but after the moſt important bodily changes have been effected. Every period of its progreſs to maturity comes on in a natural and gradual manner, ſo that the child, in a phyſical ſenſe, longer remains a child;—he does not ſhoot up into manhood, before he has completed

the proper term of youth; and thus every ſtage, as well as the whole career of his exiſtence, is conſiderably prolonged.

4. By this treatment the circulation of the fluids, and all internal motions, particularly of the lungs and inteſtines, together with the uſual evacuations, are beneficially promoted. Of no leſs advantage is the bath to thoſe children, that are ſubject to habitual coſtiveneſs; a diſtemperature which cannot be too much guarded againſt, not only during the age of childhood, but alſo through the whole life. Infants accuſtomed to the bath, and freſh air, are ſcarcely ever known to ſuffer from this complaint.

5. The texture of their muſcular fleſh becomes ſolid, the colour blooming, and the body neither appears tumid and ſpungy, nor parched and meagre. The complexion is lively and freſh;—the head and lower belly are in juſt proportion to the reſt of the body, and the diſpoſition to rickets, ſo common in children, is not perceived in them.

6. Neither are ſuch children as enjoy the benefit of the bath affected by that exceſſive ſenſibility and diſeaſed irritability of the nervous ſyſtem, which in many inſtances ſo fatally degenerates into ſpaſms, fits, and convulſions. Theſe irregularities, in early life, are chiefly inſtrumental in bringing on that pitiable ſtate, in which ſome unhappy perſons, through the whole of their lives, are little better than *loco-motive nervous machines*—organized beings, that exiſt apparently for the ſake of *feeling only, not for acting*.

7. Diſeaſes of the ſkin, eruptions, catarrhs, coughs, obſtructions of the firſt paſſages, &c. are rarely obſerved to attack a child properly treated; and if they do, their duration will be ſhort, and the *criſes* eaſy and natural.

8. Thoſe diſeaſes in children, which are commonly called dangerous, as the ſmall-pox, meaſles, ſcarlet fever, &c. and which are ultimately diſeaſes of the ſkin, are greatly alleviated in their ſymptoms, and more eaſily overcome, when the ſkin is in full health and vigour;—but as the uſual management of children deprives the ſkin of thoſe properties, we need not be at all ſurpriſed at the danger and ſubſequent mortality of children, in the abovementioned diſeaſes.

9. The early practice of waſhing and bathing may be alſo recommended, as tending to ſtrengthen that ſenſe of cleanlineſs, which is ſo praiſeworthy and uſeful in itſelf; and which is not ſufficiently cultivated among thoſe nations, where the bath is in diſuſe.*

If the means above ſtated are expected to produce their full effect, it ſhould not be forgotten, that the *whole* management of the child ought to correſpond and keep pace with

* The Ruſſians, notwithſtanding their ignorance, and ruſticity of manners, take the lead of the more refined French and Germans, both in a delicate ſenſibility of cleanlineſs, and in the practical uſe of the bath. I lately read of a foreign gentleman, travelling in Ruſſia, who had hired one of the natives as his groom or poſtillion. After having travelled ſeveral days together in very ſultry weather, the ſemi-barbarian upon his knees requeſted his employer to grant him leave of abſence for two or three hours, to refreſh himſelf with the luxury of a bath, which to him was indiſpenſable, and the want of which he had long felt. The *peaſants* in that country poſſeſs a refinement of ſenſe, with reſpect to the ſurface of the body, with which the moſt elegant *ladies* in other countries ſeem totally unacquainted.

the preceding practice. Without attending to this condition, constant washing and bathing may not only prove of little service, but may in some instances be productive of mischief. Hence it is absolutely necessary to prohibit the use of feather-beds, cumbersome dresses, &c. and to avoid all suffocating rooms, whether occasioned by too great heat, or an offensive corrupted atmosphere.

There is no practice more detrimental to the powers and energy of man, in the first period of his evolution, than that of immediately sinking the tender infant in a soft feather-bed. In this situation, all the organs become extremely relaxed, and we lay the foundation of a very serious malady, a *sweating-skin;* the source of constant colds, tooth-achs, head-achs, catarrhs, and innumerable other complaints.

For these and similar reasons, I would advise parents to lay their children, from the very hour of their birth, on soft and cooling mattresses, under thin blanket covers, or cotton quilts, which do not incommode the body, leave the hands and arms at liberty, and are not liable to excite too great a degree of heat. In the intense cold of winter, an additional blanket may be used, which, however, should be removed when the weather turns milder, and the child grows stronger. But the greatest mischief arises from bolsters or pillows filled with feathers; which must, after a certain time, produce uncleanliness and a disagreeable smell. Such a pillow is calculated to collect and retain mephitic vapours;

and for this obvious reaſon it cannot but be unſafe to ſleep for a whole twelvemonth with one's head repoſed on ſuch a maſs of acrid exhalations. This inconvenience may be eaſily avoided, by furniſhing children with cuſhions filled with horſe-hair, or with the ſofteſt bran, previouſly well beaten; the beſt for this purpoſe is the bran of oats. The great advantage of theſe pillows is, that they admit moiſture to paſs through them, conſequently they will always remain dry; and may from time to time be renewed, while they preſerve a moderate and regular degree of warmth.

Cleanlineſs, in domeſtic life, is one of the cardinal virtues, and an eſſential requiſite to the proper phyſical education of children. Indeed, I cannot help remarking, that this is perhaps the *only* province of parental care, in which we *never* can do *too much*. For this end, we ought not to neglect the article of linen, as the frequent change of it is of more conſequence than many parents are aware of. A child is much more liable to perſpire than an adult; the natural effect of which is, that its linen is more readily ſoiled and rendered unfit for wearing. I would therefore adviſe all parents, who can afford it, to give their children clean, dry linen *every day*. An undoubted proof of the utility of this practice is, that inſtances have occurred of children being cured of the rickets, when, from the firſt appearance of that complaint, they have been daily furniſhed with clean linen, well dried, and occaſionally ſmoked with juniper-berries, frankincenſe, or other perfuming ſub-

ſtances, in order to expel the moiſture, which is abſorbed by linen. But if a clean change cannot be conveniently had every day, the night-ſhirt as well as that of the day, ought to be regularly dried, and perfumed if neceſſary.

Laſtly, let the dreſs of children be light; the head and breaſt during the firſt months may be covered, though very ſlightly; but as ſoon as the hair is ſufficiently ſtrong to afford protection, there is ſcarcely any neceſſity for hats or caps, unleſs in rainy or cold ſeaſons. The breaſt and neck too acquire more firmneſs, and are rendered hardier, by keeping them uncovered; as our frequent colds and ſore throats chiefly originate from the abſurd habit of wearing boſom-friends and ſtiffened cravats.

I ſhall conclude theſe obſervations with an hiſtorical account from HERODOTUS, which clearly illuſtrates the advantage attending the cool regimen of the head. This judicious and learned writer informs us, that after the battle fought between the *Perſians*, under CAMBYSES, and the *Egyptians*, the ſlain of both nations were ſeparated: and upon examining the heads of the Perſians, their ſkulls were found to be ſo thin and tender, that a ſmall ſtone would immediately perforate them: while on the other hand, the heads of the Egyptians were ſo firm, that they could ſcarcely be fractured by the largeſt ſtones. The cauſe of this remarkable difference Herodotus aſcribes to a cuſtom the Egyptians had of ſhaving their heads from the earlieſt infan-

cy, and going uncovered in all ſtates of the weather; whereas the Perſians always kept their heads warm, by wearing heavy turbans.

I ſincerely wiſh, that the rules and obſervations, here ſubmitted to the candid reader, were more generally underſtood and practiſed, ſo far at leaſt as they are found to accord with reaſon and experience. I am not however diſpoſed to imagine, that plans of *ſudden* improvement are the moſt likely to ſucceed; and I am well aware of the difficulties we muſt expect to encounter, when we attack old and rooted prejudices, with the hope of vanquiſhing them *all at once*. For though I ſhould be fortunate enough to ſubſtitute ſounder opinions and better practices, in lieu of thoſe already eſtabliſhed, yet, unleſs the mind be prepared for ſuch changes, by a proper philoſophic culture, nothing is more probable, than that a ſpeedy relapſe into former errors will be the neceſſary conſequence. The hiſtory of our own time has, in ſome recent inſtances, evidently confirmed the truth of this obſervation. We find even the mandates of arbitrary power inſufficient to produce a thorough reform in the manners and cuſtoms of a ſuperſtitious people. The philanthropic but weak emperor JOSEPH II. was obliged to yield to the torrent of popular prejudice; and, in ſpite of his better reaſon, frequently to repeal meaſures dictated by the enlightened genius of philoſophy. His obſtinate and infatuated ſubjects were not fully ripe for ſuch ſalutary innovations. Our age is ſcarcely docile enough to purſue thoſe im-

provements, which a rapid and continual progreſs in the ſciences is daily ſuggeſting. Upon this ground alone we can explain the frequent and obvious contraſt between the prevailing theories and practices, both in the higher and lower walks of life. A great majority of the common people, from their habitual indifference to literature, and their averſion to ſerious reflection, ſtill manifeſt their ancient prejudices to every thing which falls under the deſcription of novelty or improvement. More than one generation will probably elapſe, before even a part of the uſeful hints can be realized, which lie diſperſed in the later writings on ſubjects of health and domeſtic economy. Whatever benefits can be attained by popular inſtruction, both with regard to the treatment of children and adults, muſt be introduced in a gradual manner. The ancient treatment of children, being conſecrated by time, muſt not be rudely and precipitately rejected; but old cuſtoms may be changed by prudent and moderate management; and thus we may proceed from one ſtep to another, in extending the boundaries of truth and reaſon. A gradual tranſition from a faulty to a better ſtate of things, is commonly the moſt permanent. Let us combat, at firſt, the moſt dangerous notions and prejudices: the conqueſt over a *ſingle* prejudice, if it be completely extirpated, is a triumph of no little moment; inaſmuch as it will ſhake the foundation of many others, more or leſs connected with it.

In my earneſt endeavours to caution the reader againſt inveterate prejudices, I do not mean to inſinuate, that a perfect and permanent ſtate of health is compatible with the delicate organization and complex functions of the human body: I am well aware, that its moſt healthy condition cloſely borders on diſeaſe, and that the ſeeds of diſtempers are already planted in the very fulneſs or luxuriance of our fluids. Hence no *abſolute* perfection is to be found among mortals, whether we conſider them in a phyſical or moral ſtate. CICERO illuſtrates this poſition, when ſpeaking of man as a moral agent, with equal truth and energy, in the following words: "He is not," ſays this philoſophical orator, "the moſt virtuous man, who commits *no* faults; but I conſider him as the moſt virtuous, whoſe conſcience reproaches with the *feweſt*."

CHAP. I.

A Practical Inquiry into the means and plans adopted among different nations, with a view to prolong human life.—An historical survey of this interesting subject, in different ages; together with the success which has attended the respective efforts made by nations and individuals.—A brief statement of the conditions requisite to the attainment of a long and healthy life.—Observations, rules, and cautions deduced from the experience of ages.—Symptoms of actual dissolution.—Summary account of a dietetic system; explanation of its design, and the vast diversity of objects comprehended under this popular science.

AS the enjoyment of 'a sound mind in a sound body' is one of the greatest of terrestrial blessings, it is incumbent on every rational inquirer, to devote some portion of his time and industry to the research of such useful and practical objects, as may contribute to improve and insure so desirable a state.

As long as the various functions of the human body, the voluntary as well as the involuntary motions, are performed with ease, and suffer no interruption, we usually pronounce the body to be in a state of health; in the contrary case we call it diseased. I shall advance a step further, and assert, that when we do not feel ourselves encumbered with the

weight of our own frame, and when we are not disposed to reflect, with uneasiness and solicitude, upon its physical condition, then we have a right to consider our health as being in a perfect state.

Although we are liable to suffer from the attacks of disease, in a variety of shapes, yet we have abundant reason to contemplate with satisfaction the chequered condition of human life: for, even in the present imperfect state of things, we find comforts more than sufficient to counterbalance our sorrows. Considering the innumerable accidents, to which we are daily and hourly exposed, it is a matter of just surprise, that frail, imbecile man should remain in health during the greater part of his life; and still more so, that, upon an average, the number of healthy individuals should be found far to exceed those in a contrary state. If we further advert to the want of thought and circumspection, which marks the conduct of man in general, in the treatment of his body, our astonishment will necessarily increase, that he so often escapes the dangers prepared by his own hands. But parental Nature frequently repairs the injury, though we are not conscious of her salutary efforts. She powerfully co-operates, when art is called in aid, to restore that harmony and order in the system, which had been imprudently or inadvertently disturbed. To her healing powers we are principally indebted, if the sufferings resulting from ignorance or obstinacy are less severe, than the extent of the mischief seemed to portend.

It cannot be expected, that persons unacquainted with the economy of the human frame should be able to discriminate between internal and external causes, and their effects. Where a competent share of this knowledge is wanting, it will be impossible to ascertain, or to counteract, the different causes by which our health is affected; and should a fortunate individual ever fix upon a suitable remedy, he will be indebted to chance alone for the discovery.

This has been the case in all ages, and alas! it is still deplorably the case. Remedies have from time to time been devised, not merely to serve as *Nostrums for all diseases*, but also for the pretended purpose of *prolonging human life*. Those of the latter kind have been applied with a view to resist or check many operations of nature, which insensibly consume the vital heat, and other powers of life, such as respiration, muscular irritability, &c. Thus, from the implicit credulity of some, and the exuberant imagination of others, observations and experiments, however discordant with sound reason and philosophy, were multiplied, with the avowed design of establishing proofs or refutations of this or that absurd opinion. In this manner have fanaticism and imposture falsified the plainest truths, or forged the most unfounded and ridiculous claims; so that one glaring inconsistency was employed to combat another, and folly succeeded folly, till a fund of materials has been transmitted to posterity, sufficient to form a concise history of this subject.

Men, in all ages, have set a just value on long life; and in proportion to the means of enjoying the same, this value has been felt in a greater or less degree. If the gratification of the sensual appetite formed the principal object of living, the prolongation of it would be, to the epicure, as desirable, as the prospect of a life to be enjoyed beyond the limits of the grave, is to the moralist and the believer.

In the Old Testament, the promise of a long life was held up as one of the most important sources of consolation: and, conformably to the principles of Christianity, a patient continuance in well-doing, or, in other words, a long life rich in good works, can best insure the hope of a more happy state in a future world. Hence the wish of a speedy termination of our existence here, is one of those eccentricities, into which only persons deprived of reason are liable to be drawn, either from extreme anxiety, or the want of mental fortitude. The desire of longevity seems to be inherent in all animal life, and particularly in human nature: it is intimately cherished by us, throughout the whole of our existence, and is frequently supported and strengthened, not only by justifiable means, but also by various species of collusion.

The possibility of prolonging human life was never doubted by the Orientals, even in the earliest ages. One of the most ancient methods on record, is that of placing the aged and decrepit in the vicinity of an atmosphere, replete with the exhalations of blooming youth. It is not improbable, that a certain

cuſtom then prevailing in the Eaſt, by alluring the fancy with beautiful images, and by impoſing upon the underſtanding through poetical fictions, firſt induced man to entertain this ſingular notion. The bloom of a juvenile age, and particularly the healthful virgin, was compared, by the Orientals, with roſes, lilies, and other elegant flowers; ſhe was introduced in allegorical deſcription, to repreſent odoriferous ſpices, balms, and oils, and was made the ſubject of paſtoral and other poems. How eaſy, then, the tranſition from fancy to belief, that the exhalations of vigorous and healthy perſons muſt be highly conducive to the ſupport of exhauſted age; that they were capable, like the fragrant balms of the Eaſt, of ſoftening the rigidity of the fibres, of exciting the vital ſpirits, and, in ſhort, of ſupplying the aged with a freſh ſtock of health. The hiſtory of KING DAVID furniſhes us with a ſtriking illuſtration of this renovating proceſs.

In the writings of the ancient phyſicians, we meet with various accounts, from which we learn, that this method has ever been a favourite reſource of invalids, worn out with age. Modern phyſicians alſo mention the practice, and the celebrated BOERHAAVE informs us, that he adviſed an old and decrepit burgomaſter at Amſterdam to ſleep between two young perſons; and that his patient, who before was ſinking under the weight of infirmities, obviouſly recovered ſtrength and cheerfulneſs of mind.

The great age of ſome ſchoolmaſters has

likewiſe been aſcribed to the benefit they derive from breathing, almoſt conſtantly, among young and healthy children. It has been farther obſerved, that young perſons, if they ſleep in company with the aged, become lean and enfeebled.—Upon more accurate inquiries, however, it is pretty evident, that moſt of the benefits (perhaps all of them) which the aged derive from this expedient, may be placed to the account of the imagination, and its ſurpriſing effects on the body. It is this power which, in my opinion, renews the languiſhing flame of the aged, and which may preſerve them for ſome time longer in that renovated ſtate, provided it be ſupported by a proper attention to diet and other circumſtances.—We frequently ſee a debilitated and peeviſh old man aſſume a complacent ſmiling aſpect, when a ſprightly maiden addreſſes him in the language of courteous pleaſantry. The moſt charming images recur to his ſtimulated imagination; and the powers of life are, as it were, again rouſed, and directed to one object. That ſuch means of reanimating old age, may have a favourable effect on health, cannot be diſputed.

To imagine, however, that the vigour of health and the bloom of youth can be tranſfuſed by inſenſible perſpiration, or exhalation, into the body of the aged, is to labour under a very palpable miſtake. I ſhall prove, in the next Chapter "On Air and Weather," that every living being neceſſarily corrupts the air more or leſs by its reſpiration; and that the atmoſphere, thus impregnated, be-

comes unfit for other beings to breathe in; becauſe every expiration contains certain particles, which are ſeparated by the lungs, as being uſeleſs and noxious to the body. How then is it conceivable, that matters or ſubſtances ſhould be hurtful to one body, if retained in it, and uſeful to another, if communicated to it? Or was it ſuppoſed, that the *watery parts* of inſenſible exhalation from the young body, could moiſten and refreſh the parched fibres of the aged? To accompliſh this purpoſe, we are poſſeſſed of remedies much purer and more effectual. Natural warmth or heat is the only means competent to produce ſuch a ſalutary effect; as that alone is capable of exciting the ſlumbering energy of life. And in this reſpect, I apprehend, we ought to do juſtice to the above-deſcribed method practiſed by the ancients.

When young perſons live or ſleep with old people, and are obſerved to grow thin and infirm, (which however is not always the caſe) that proceeds from another circumſtance, namely, that the former abſorb or inhale the noxious particles of the latter; but from this it by no means follows, that the aged body attracts the vital principle from the younger. Although free *caloric*, or matter of heat, may probably paſs over from the young body into that of the aged; yet this transfuſion, under certain circumſtances, would be rather to the advantage than diſadvantage of the former; inaſmuch as this deprivation of ſuperfluous caloric is not unfrequently found to be ſerviceable and wholeſome.

From the preceding remarks we may conceive, that a ſchool-room filled with the various exhalations of children, cannot conduce to the prolongation of life; and, conſequently, that the great age of certain ſchoolmaſters muſt be aſcribed to ſome other cauſe. An accurate account of the mortality prevailing among that claſs of men would ſatisfactorily demonſtrate, that the age of ſchoolmaſters is in a juſt proportion to that of other claſſes of ſociety.

I ſhall now conſider ſeveral other plans, that have been adopted for the prolongation of human life.

The Egyptians, who lived in a country rendered unwholeſome by intenſe heat and frequent inundations, could not long remain ignorant of the comparative longevity of their northern neighbours, the Greeks. After many fruitleſs attempts to diſcover the true cauſe of their ſhort life, and to provide the means of removing that cauſe, they at length became fanatical enough to imagine themſelves poſſeſſed of the grand ſecret for prolonging life—in the conſtant uſe of ſudorifics and emetics. The air of Egypt, being impregnated with aqueous and putrid particles, not only checked the proceſs of perſpiration, but alſo generated various epidemic diſtempers. In ſuch caſes, ſudorific medicines were neceſſary and proper; and even emetics, by exciting a forcible commotion through the whole ſyſtem, not unfrequently reſtored the activity of the cutaneous veſſels, and thus produced a favourable effect in thoſe mala-

dies. Farther, the heat of the climate inſpiſſated their fluids; this circumſtance, connected with their uſual mode of life, and their crude articles of food, neceſſarily brought on an exceſs of bile, which overflowing the ſtomach upon the leaſt occaſion, could not fail, ſooner or later, to occaſion very obſtinate diſeaſes. The emetics, therefore, being eminently qualified to evacuate the bile, would of courſe obtain general reputation among the Egyptians. Theſe and the ſudorifics were for a long time conſidered as ſpecific remedies; from their tendency to expel the matter ſo dangerous to life; and becauſe in thoſe ages diſeaſes were conſidered the *only* enemies to longevity: the Egyptian phyſicians and philoſophers not being able to diſtinguiſh between effects and their cauſes, the latter of which exiſted in the peſtilential vapours of a hot climate.

Thus it became a cuſtom to take at leaſt two emetics every month; to inquire of acquaintances and friends, how thoſe medicines had operated, and to wiſh each other joy upon theſe occaſions. I need not obſerve, that this ſingular method of prolonging life is not to be recommended as worthy of imitation; that the periodical cuſtom of taking medicinal remedies renders their frequent repetition neceſſary, while it deſtroys their occaſional efficacy; and that it therefore chiefly belongs to the department of the phyſician to determine, when, and in what degree, ſuch medicines are to be adminiſtered.

The Greeks lived in a more romantic and

picturesque country; their conceptions with regard to the structure and functions of the human frame were more correct and conformable to nature. Their philosophers and physicians were more enlightened and less prejudiced than those of Egypt; they were not, like the latter, under the capricious influence of a wild imagination, too frequently disordered by the effects of BLACK BILE. Nature, displayed in all her charms, in the sublime and beautiful scenery of their country, every where invited them to the enjoyment of free and pure air; the effects of this on their susceptible nerves, combined with an excellent system of bodily exercise, proved the best specific for counteracting the effects of time, and thus prolonging their active, healthful lives. For this great and beneficial purpose, particular methods and rules were contrived, in order to give the body the most varied and effectual, yet gentle motions;—these athletic exercises were judiciously adapted to the different constitutions, situations, and ages of life, so that the sagacious Greeks arrived at an extraordinary degree of perfection in the *gymnastic art*.

The great advantage of such a course of bodily exercise cannot be disputed, when we consider how many individuals in all countries die prematurely from want of activity, motion, and nervous energy; though their organization may be in no respect faulty. Besides, a body inured to frequent and laborious exercise, will not be easily affected by external causes of disease; being secured, as

it were, by a coat of mail, againſt the attacks of many acute diſorders.

The Greeks carried, to a ſtill greater degree, the ſyſtem of gymnaſtic motions. By the ſame method they attempted to cure diſeaſes in their firſt ſtages, not excepting ſuch as were already formed, and to put a ſtop to their further progreſs. They cauſed the patient to move in various poſitions; they applied gentle friction to the whole ſurface of the body; and uſed different methods to overcome the languor of the muſcles, by exciting and ſtimulating the muſcular energy.

In relaxed, weakly individuals, whoſe organization is deficient in the proper degree of tenſion or elaſticity, this method muſt be allowed to poſſeſs great advantages; but I do not conceive it neceſſary to prove here, that it cannot be conſiſtently applied to *all* diſeaſes. It is not to be ſuppoſed, that the weary traveller can be either ſtrengthened or refreſhed by additional exerciſe.

The modern methods of bracing the human body, ſuch as frequent bathing in cold water, expoſing the body to all the viciſſitudes of climate and weather, the various modes of ſupporting bodily fatigue, as travelling on horſeback and on foot, &c. which are ſo indiſcriminately recommended to our aſpiring youth, cannot in every inſtance fortify and render the human frame indeſtructible:—on the contrary, *all ſuch violent efforts* have a tendency to bring on the ſymptoms of age, at a much earlier period than it ought to appear; as the joints and muſcles are there-

by rendered liable to contract an uncommon degree of ſtiffneſs and rigidity.—To load tender youth with burthens diſproportionate to their age, and to impoſe upon them the taſk of men, can never be the moſt proper means of hardening and preparing them for a long and active life.

A diſtinction, however, ſhould be made here, between bracing the *fibres*, of which all ſolid parts of the body conſiſt, and bracing the ſenſe of *touch* or *feeling*. The animal fibres may be ſolid, but ſhould not be ſo rigid as to become inſenſible; a certain degree of irritability is neceſſary to the proper exerciſe of their contracting and relaxing power. If, further, there ſhould exiſt in the body a diſpoſition towards rigidity and inſenſibility, any artificial modes of bracing it will be of dangerous tendency. If, on the contrary, the fibres ſhould be too irritable, the Grecian method may, in that caſe, be reſorted to with ſafety and advantage. A ſtriking inſtance of this occurs in the hiſtory of Captain Cook. On his arrival in the Friendly Iſlands, he was ſeized with an acute rheumatiſm, attended with excruciating pains. He was ſoon relieved from this torturing ſituation, by the eaſy and inſtinctive proceſs of gentle friction, which the Iſlanders generally followed on ſuch occaſions. Thus a few untutored perſons completely effected what could not have been ſooner, nor more eaſily accompliſhed by the ſyſtematic art of the learned.

From theſe conſiderations we may ſafely infer, 1. That the cold bath, gymnaſtic exer-

ciſes, bodily fatigue of any kind, and all expedients to brace and invigorate the conſtitution, ought only to be adopted under certain limitations, viz. with a proper regard to particular caſes and circumſtances: and, 2. That theſe ſevere remedies cannot and ought not to be univerſally nor indiſcriminately recommended, as methods of prolonging life.

Let us not, however, diſparage the merits of that ingenious race of men, whom we only know from their inimitable works. For, although the method of the Greeks cannot be ſafely introduced among us, without many and great exceptions, we muſt do them the juſtice to allow, that in their operations of hardening the human body, they proceeded in a more cautious, gradual, and judicious manner, than the moderns ſeem willing to ſubmit to. Sudden changes of any kind produce a ſort of revolution in the body, and this is neceſſarily attended with a waſte of ſtrength, proportionate to the violence of the ſhock.

Plutarch poſſeſſed clear and rational ideas on the ſubject of preſerving and prolonging human life; the truth of which he confirmed by his own experience, during a ſeries of many happy years. He adviſes to keep the head cool and the feet warm, not immediately to take medicines on every ſlight indiſpoſition, but rather to let Nature relieve herſelf by faſting a day, and, in attending to the mind, never to forget the body. Much learning is compreſſed in theſe golden precepts, which will be valuable as long as hu-

man nature remains the same. The attention bestowed upon the mind, however laudable, should not authorise us to neglect the care of the body; the intimate connexion subsisting between both requires a due proportion of care and attention to be paid to each. In the same degree, as a diseased body sympathetically torments the mind, so does an infirm mind agitate and harass the body; and such tortures and reciprocal affections are unavoidably attended with the consumption of animal life.—What Plutarch enjoins, with respect to keeping the head cool and the feet warm, is agreeable to reason and experience; we should not, however, imagine, that the grand secret of prolonging life consists in the sole observance of these maxims. The head and feet are not the only points, in which life is concentrated; they may indeed have a beneficial or pernicious influence on the whole body, and in this respect they demand a share of our attention; but no other part ought on that account to escape our notice.

I now enter upon a very unpleasant task, namely, that of reviewing a period of darkness, during the barbarity of the middle ages, when the progress of true knowledge was obstructed by the most absurd fancies and childish conceits; when conjectures, caprices and dreams supplied the place of the most useful sciences, of the most important truths. Chemistry, so essentially requisite to explain the phenomena of known and unknown substances, fell into the hands of jugglers and fanatics;—their systems, replete with philo-

ſophic nonſenſe, and compoſed of the moſt crude, heterogeneous materials, ſerved rather to nouriſh ſuperſtition than to eſtabliſh facts and illuſtrate uſeful truths. Univerſal remedies, in various forms, met with ſtrenuous advocates and deluded conſumers. The path of accurate obſervation and experiment was forſaken; far from penetrating into the myſterious receſſes of Nature, they bewildered themſelves in the labyrinth of fanciful ſpeculation; they overſtepped the bounds of good ſenſe, modeſty, and truth, and the blind led the blind.

The prolongation of life, too, was no longer ſought for in a manner agreeable to the dictates of Nature; even this intereſting branch of human purſuits was rendered ſubſervient to Chemiſtry, or rather to the confuſed ſyſtem of Alchemy. *Original matter* was looked upon to be the elementary cauſe of all beings; by this they expected literally to work miracles, to tranſmute the baſe into noble metals, to metamorphoſe man in his animal ſtate by chemical proceſs, to render him more durable, and to ſecure him againſt early decline and diſſolution. Millions of veſſels, retorts, and phials were either expoſed to the action of the moſt violent artificial heat, or to the natural warmth of the ſun; or elſe they were buried in ſome dunghill, or other fetid maſs, for the purpoſe of apprehending this *original matter*, or obtaining it from putreſcible ſubſtances.

As the ſubſtance called Gold always bore the higheſt value among metals, theſe mon-

grel philoſophers concluded, from a ridiculous analogy, that its value, with reſpect to the preſervation of health, and the cure of diſeaſes, muſt likewiſe furpaſs that of all other remedies. The nugatory art of diſſolving it, ſo as to render it potable, and to prevent it from being again converted into metal, employed a multitude of buſy idiots, not only in concealed corners, but in the ſplendid laboratories of the palaces of the great. Sovereigns, magiſtrates, counſellors, and impoſtors, were ſtruck with the common frenzy, entered into friendſhip and alliance, formed private fraternities, and ſometimes proceeded to ſuch a pitch of extravagance, as to involve themſelves and their poſterity in ruinous debts. The real object of many was, doubtleſs, to gratify their avarice and deſire of aggrandiſement, although this ſiniſter motive was concealed under the ſpecious pretext of ſearching for a remedy, that ſhould ſerve as a tincture of life, both for the healthy and diſeaſed; yet ſome among theſe whimſical mortals were actuated by more honourable motives, zealous only for the intereſts of truth, and the well-being of their fellow-creatures. The common people in ſome countries, particularly Italy, Germany, and France, often denied themſelves the neceſſaries of life, to ſave as much as would purchaſe a few drops of the tincture of gold, which was offered for ſale by ſome ſuperſtitious or fraudulent chemiſt: and ſo thoroughly perſuaded were they of the efficacy of this remedy, that it afforded them in every inſtance the moſt confident and

only hope of recovery. Theſe beneficial effects were poſitively promiſed, but were looked for in vain. All-ſubduing Death would not ſubmit to be bribed with gold, and Diſeaſe refuſed to hold any intercourſe with that powerful deity, who preſides over the trade and commerce of nations.

As, however, theſe diverſified and almoſt numberleſs experiments were frequently productive of uſeful inventions in the arts and manufactures; and as many chemical remedies of real value were thereby accidentally diſcovered, the great and general attention to thoſe bold projectors, was conſtantly kept alive and excited. Indeed, we are indebted to their curious operations, or rather perhaps to chance, for ſeveral valuable medicines, the excellence of which cannot be diſputed, but which, nevertheleſs, require more precaution in their uſe and application, and more perſpicacity and diligence in inveſtigating their nature and properties, than the original preparers of ſuch articles were able or willing to afford.

All their endeavours to prolong life, by artificial means, could not be attended with beneficial effects; and the application of the remedies thus contrived, muſt neceſſarily, in many caſes, prove detrimental to the health of the patient. In proof of this aſſertion, it will be ſufficient to give a ſlight ſketch of the different views and opinions of the Goldmakers, Roſencrucians, manufacturers of Aſtralian Salts, of the Drops of Life, and Tinctures of Gold, hunters after the Philoſopher's Stone,

&c. &c. Some of these enthusiasts fancied life to resemble a flame, from which the body derived warmth, spirit, and animation. This flame they endeavoured to cherish and to increase by their remedies, supplying the body with materials to feed the same, as we pour oil into a burning lamp.

Others imagined they had discovered something invisible and incorporeal in the air, that important medium in supporting the life of man. They pretended to catch, to refine, and so to reduce and *materialize* this undefinable something, that it might be swallowed in the form of powders or drops; that by its penetrating powers it might insinuate itself into the whole animal frame, invigorating and qualifying it for a longer and healthier duration than usual.

Others again were foolish enough to cherish a notion, that they could divest themselves of the properties of matter during this life; that in this manner they might be defended against the gradual approaches of dissolution, to which every animal body is subject; and that thus fortified, without quitting their terrestrial tabernacle, they could associate at pleasure with the inhabitants of the spiritual world.

The Sacred Volume itself was interpreted and commented upon by the Operators and Alchemists, with a view to render it subservient to their interested designs. Indisputable historical facts, recorded in this invaluable book, were treated by them as hieroglyphical symbols, which contained chemical processes:

and the fundamental truths of the Chriſtian religion were applied, in a wanton and blaſphemous manner, to the purpoſes of making Gold, and diſtilling the Elixir of Life.

The productions of Alchemy, far from anſwering the purpoſe of prolonging life, have rather a contrary tendency. All the remedies which it affords, are of a heating and ſtimulating nature. The perſon who takes them will feel himſelf more cheerful for ſome time, and on that account he may fancy himſelf more vigorous and juvenile; as they certainly give an additional impulſe to the ſenſations of life, like wine, ſpirits, and all other ſtimulants. But this increaſe of the *ſenſation of life* ſhould by no means be confounded with an increaſe of the *power of life*. It may be even ſafely affirmed, that by the increaſe of vital ſenſations, the career of life itſelf is accelerated, and the conſumption of it ſooner exhauſted; conſequently the duration of the body is neceſſarily ſhortened.

I ſhould not omit to mention, that theſe remedies ſtrongly increaſe the ſenſitive power of man, they prediſpoſe him to ſenſual purſuits, ſtimulate him to commit exceſſes of every kind, incite him to take continual or exceſſive exerciſe, as dancing, and the like, and thus by inevitable conſequence haſten the waſte and diſſolution of the body. That, for inſtance, which, according to the natural courſe, ought to be expended or conſumed in three days, is diſſipated perhaps in as many jovial hours. This premature loſs is attended with relaxation, irkſomeneſs, and even

averſion to life, till a new doſe of ſtimulants reproduces the former falſe vivacity. It fares with the patient here, as it does with the hard drinker, who trembles in the morning that follows his nightly debauch, feels his whole frame relaxed, inactive and torpid, and is in a manner obliged to take a freſh dram of his favourite liquor, before he can enter on any ſerious buſineſs, with pleaſure or effect.

Theſe famous eſſences, balms, tinctures of life, &c. are farther dangerous, as they contract the ſmall veſſels, ſo neceſſary to the preſervation of life, as well as to the reparation of the loſſes ſuſtained, and thus render them unfit to perform their offices. Hence ariſe rigidity or ſtiffneſs, and exſiccation; the body ſhrivels, and the ſymptoms of old age appear at an earlier period than they would otherwiſe have done. Man is ſeldom unprovided with the ſupplies of vitality;—every draught of air we inhale, and every particle of food we ſwallow, is a freſh acceſſion to the ſtock of life. But as ſoon as the *ſuſceptibility* or *power of receiving* thoſe ſupplies becomes languid, we then may be conſidered as unfit to perform the functions of life; and all the medicaments of nature and art will be found inſufficient to relieve us. He who ſearches for the ſupplies of life in alchemical productions, elixirs, balſamic eſſences, &c. will ſooner or later, but always prematurely, experience the want of ſuſceptibility. Even that impudent boaſter and celebrated *inſurer of lives*, THEOPHRASTUS PARACELSUS, although he pretended to have in his poſſeſſion the

ſtone of immortality, died—in his fiftieth year! His vegetable ſulphur was a heating and ſtimulating remedy, partly ſimilar to the Anodyne Liquor of Hoffmann.

The world of ſpirits alſo was invaded, and ſummoned, as it were, to contribute to the prolongation of human life. Spirits were ſuppoſed to have the rule of air, fire, earth, and water; they were divided into particular claſſes, and particular ſervices aſcribed to each. The malevolent ſpirits were oppoſed and counteracted by various means of prevention: the good and tutelary were obliged to ſubmit to a ſort of gentle, involuntary ſervitude. From inviſible beings were expected and demanded viſible means of aſſiſtance—riches—health—friends—and long life. Thus the poor ſpirits were profanely maltreated, nay they were ſometimes puniſhed, and even miſerably flogged in effigy, when they betrayed ſymptoms of diſaffection, or want of implicit loyalty.

As men had thus, in their weakneſs and folly, forſaken the bounds of this terreſtrial ſphere, it will eaſily be believed, that with the help of an exuberant imagination, they would make a tranſition to the higher regions—to the celeſtial bodies and the ſtars, to which indeed they aſcribed no leſs a power than that of deciding the deſtinies of men, and which, conſequently, muſt have had a conſiderable ſhare in ſhortening or prolonging the duration of human life. Every nation or kingdom was ſubjected to the dominion of its particular planet, the time of whoſe

government was determined; and a number of aſcendant powers were fictitiouſly contrived, with a view to reduce under its influence every thing which was produced and born during its adminiſtration.

The profeſſors of aſtrology appeared as the confidants of theſe inviſible rulers, and the interpreters of their will; they very well underſtood the art of giving a reſpectable appearance to this uſurped dignity. Provided they could but aſcertain the hour and minute of a perſon's birth, they confidently took upon themſelves to predict his mental capacities, future viciſſitudes of life, diſeaſes, together with the circumſtances, the day, and the hour of his death. Not only the common people, or the leſs informed claſſes of ſociety, but the moſt reſpectable men for learning and abilities, nay even thoſe of the higheſt rank and ſtation, did homage to thoſe "gods of their idolatry," and lived in continual dread of their occult powers. With anxious countenances and attentive ears, they liſtened to the effuſions of thoſe ſelf-appointed oracles, which prognoſticated the bright or gloomy days of futurity. Even phyſicians were ſolicitous to qualify themſelves for an appointment no leſs lucrative than reſpectable:—they forgot, over the dazzling hoards of Mammon, *that they were peculiarly and profeſſedly the pupils of Nature.* The curious ſtudent in the Univerſities found every where public Lecturers, who undertook to inſtruct him in the profound arts of divination, chiromancy, and the famous *cabala*.

Not to mention other instances, I shall cite that of the noted *Thurneisen*, in the last century, who was invested at Berlin with the respective offices of Printer to the Court, Bookseller, Almanack-maker, Astrologer, Chemist, and First Physician. Messengers daily arrived from the most respectable houses in Germany, Poland, Hungary, Denmark, and even from England, for the purpose of consulting him respecting the future fortunes of new-born infants, acquainting him with the hour of their nativity, and soliciting his advice and directions as to their management. Many volumes of this singular correspondence are still preserved in the Royal Library at Berlin. The business of this fortunate adept increased so rapidly, that he found it necessary to employ a number of subaltern assistants, who, together with their master, realized considerable fortunes. He died in high reputation and favour with his superstitious cotemporaries; and Thurneisen's Astrological Almanack is yet published in some of the less enlightened provinces of Germany. But it may be asked, how it happens, that an art which determines the fate of mortals, and ascertains the impassable limits of human life, can at the same time serve as the means of prolonging it? This I shall now proceed to account for. The teachers of divination maintained, that not only men, but all natural bodies, plants, animals, nay whole countries, including every individual place and family, were under the government of some particular planet. As soon as the masters of the OCCULT SCIENCE had discov-

ered, by their tables, under what conſtellation the misfortune or diſtemper of any perſon originated, nothing further was required, than that he ſhould remove to a dwelling ruled by an oppoſite planet, and confine himſelf excluſively to ſuch articles of food and drink, as were under the influence of a different ſtar. In this artificial manner, they contrived to form a ſyſtem, or peculiar claſſification of plants, namely, lunar, ſolar, mercurial, and the like—and hence aroſe a confuſed maſs of dietetic rules, which, when conſidered with reference to the purpoſes of health, cleanlineſs, exerciſe, &c. form a remarkable contraſt to thoſe of the Greeks.

Neither was this preventive and repelling method confined merely to perſons ſuffering under ſome bodily diſorder. In the caſe of individuals who enjoyed a good ſtate of health, if an unlucky conſtellation happened to forebode a ſevere diſeaſe, or any other misfortune, they were directed to chooſe a place of reſidence influenced by a more friendly ſtar; or to make uſe of ſuch aliment only as, being under the auſpices of a propitious ſtar, might counteract the malignant influence of its adverſary.

It was alſo pretty generally believed and maintained, that a ſort of intimate relation or ſympathy ſubſiſted between metals and plants; hence the names of the latter were given to the former, in order to denote this ſuppoſed connexion and affinity. The correſponding metals were melted into a common maſs, under a certain planet, and were formed into

ſmall medals or coins, in hopes, and with the firm perſuaſion, that he who carried ſuch a piece about his perſon, might confidently expect the whole favour and protection of the planet thus repreſented.

The tranſition from one degree of folly to another is eaſy; and this may help us to account for the ſhocking deluſions practiſed in the manufacturing and wearing of metallic amulets of a peculiar mould, to which were attributed, by a ſort of magic influence, the power and protection of the planet, to whom they related: theſe charms were thought to poſſeſs virtue ſufficient to overrule the bad effects preſaged by an unlucky hour of birth, to promote to places of honour and profit, and to be of potent efficacy in matters of commerce and matrimony. The German ſoldiers, in the dark and ſuperſtitious ages, believed, that if the figure of Mars, caſt and engraved in the ſign of the Scorpion, were worn about the neck as an amulet, it would render them invulnerable, and inſure ſucceſs to their military enterprizes: hence amulets were found upon every ſoldier, either killed in battle or taken priſoner.

But let us quit a ſubject which excites diſguſt, as it exhibits ſuch glaring deviations from reaſon and truth. It is much more pleaſant to dwell upon examples, which afford ſatisfactory proof, that the human mind has never been *entirely and univerſally* debaſed, and that there have always exiſted ſome individuals, though few in number, who would not ſubmit their necks to the yoke of popu-

lar prejudice, and whose superior talents and virtues rescued them from the impositions of general folly or depravity. A memorable instance of this rare merit is to be found in the noble Venetian LEWIS CORNARO, whose history illustrates this agreeable and instructive truth, that nature, left to herself, or, in other words, a properly chosen mode of life and diet, regularly persisted in, will achieve great things; and that a frame, disordered and even reduced to a state bordering on the grave, may yet be re-established, and preserve its health and vigour for a great number of years.

Cornaro had been a professed epicure and libertine, till he entered into the fortieth year of his age. His constitution was so far reduced by the colic, rheumatic pains, fevers, &c. that his physicians at length gave him up, assuring him he could not survive much longer than two months; that no medicines whatever could avert this catastrophe, and that the only possible means of preserving his life would be a regular adherence to a frugal diet. He punctually followed this advice, perceived symptoms of convalescence within a few days after entering on his plan of reformation, and, after the lapse of twelve months, was not only completely restored, but found himself in a better state of health than he had ever been during any period of his life. He resolved therefore to confine himself to a still more parsimonious regimen, and to take nothing more than what he judged to be absolutely requisite for his support.

Thus, during *sixty* years, he confined himself to exactly twelve ounces of food a day, (bread and other nourishment included) with thirteen ounces of beverage. It should be also observed, that during this long period he carefully avoided violent heat, cold, passions, and extremes of every kind; and by rigidly and uniformly adhering to this moderate diet, not only his body, but his mind also, acquired so determined a tone, that no common incidents could affect them. At a very advanced age he lost a law-suit, which involved pecuniary concerns of great importance, and on account of which two of his brothers died of broken hearts; but he still retained his pristine health and tranquillity. His carriage happening on some occasion to be overset, he was dragged by the horses, in consequence of which his arms and legs were dislocated. He caused them, however, to be reduced again, and, without taking any medicines, we find him in a short time restored.

A striking instance of the dangerous effects likely to attend the slightest deviation from long custom and habit, is the following: When Cornaro had reached his eightieth year, his friends prevailed upon him to add a small portion to his daily quantum of food; alleging that his advanced age necessarily called for additional support. Although he was not convinced by this argument, being of opinion, that, with the general decrease of strength, our powers of digestion are likewise impaired, and that we ought to diminish rather than to increase our food, in pro-

portion to the decay of nature; yet he yielded to the solicitations of his friends, and increased his food from twelve to fourteen, and his drink from thirteen to sixteen ounces. "Scarcely," to quote the words of our dietetic veteran, "had I proceeded in this altered mode of living for ten days, before I found my spirits visibly affected; a fretful, peevish temper succeeded to my former cheerfulness and gaiety, so that I became a burden to myself and others. This change of temper was followed by other symptoms still more alarming. On the twelfth day, I was attacked with a pain in my side, which continued for twenty-four hours together, and soon after found myself oppressed by a fever that raged with unabating fury for thirty-five days, so that my life was at times despaired of. By the blessing of God, however, on returning to my former regimen, I recovered from this shock, and now enjoy, in my eighty-third year, perfect health of body and serenity of mind. I can mount my horse without assistance; I can climb steep precipices, and but lately I wrote a comedy, abounding with traits of innocent mirth and raillery. When I return home, after being engaged in my private affairs, or from attending the councils of state, I feel inexpressible satisfaction in the company of my grandchildren, eleven in number, whose education, amusement, and songs, are the comfort of my age. I frequently join them in singing, as my voice is now stronger and clearer than I ever knew it to be in my youth, and as my happiness is

not disturbed by the complaints, the morosenes, and discontented humours, so frequently the lot of intemperate old age."

In this happy frame of body and mind, Cornaro attained to his hundredth year; his virtuous and memorable example, however, has hitherto had but few followers. He found by *actual observation* and *experience*, that a strict and uniform regimen, or a regular daily allowance of food and drink, ascertained by weight, was the best method *he* could pursue, for the purpose of prolonging his life. He did not wish however to be understood, nor does it follow in general, that this or any other precise portion of nutriment is to be held out as a proper standard, by which *all persons* are to regulate their diet. His advice, that we should take no more food than what is absolutely necessary to our subsistence, may be thus explained; namely, that the restoration of strength, derived from supplies of nutriment, ought to bear an exact proportion to the losses sustained by the body. He, for instance, who spends little of his time in bed, and much in the open air, takes frequent exercise, is constantly employed in some laborious occupation, makes long journies on foot or horseback, or the like, will feel himself refreshed and strengthened after partaking of a plentiful meal, and cheering beverage; and such a repast is even indispensable to him, to recruit the sources of his muscular strength and activity. If, on the other hand, a person who lounges away half of his time in bed, or upon the sofa, were to consume a quantity of

food equal to the former, he would no doubt feel himself heavy and uncomfortable. Yet here too, the consequent loss of strength may vary in degree, in different sedentary persons; and this circumstance will afford me an opportunity, in the sequel, to apply to individual cases the doctrine suggested by the experience of Cornaro.

There was another period, during which *blood-letting* came into general use, and obtained great credit, as one of the most effectual means of prolonging life: the superfluity and vitiated state of the blood, or what physicians term a *plethoric habit*, being looked upon, at the same time, as a principal means of shortening life. Through the veins thus regularly opened, at certain seasons, the superfluous or vitiated blood was supposed to be emitted, while that of a more salubrious quality was left behind. Considered as a medical remedy, phlebotomy must certainly be allowed to possess its uses, and it is sometimes a necessary expedient, to produce an immediate diminution in the fulness of the blood, particularly when the time is too short, and the danger too pressing, to admit of any other method for effecting that purpose. As there can be no doubt, that blood-letting is an invaluable remedy in many disorders, it is the more peculiarly incumbent on the practical physician, to distinguish with care those cases, in which imminent danger may be averted, and health restored by the use of it. I am of opinion, that there are two cases, and only two, in which venesection is likely to be attended

with real advantage; 1ſt, When it is required to prevent the fluids gaining acceſs to the parts more eſſential to life; and, 2dly, Where means muſt be ſpeedily uſed, to counteract a threatened inflammation in the inteſtines. But, even in theſe two caſes, the intelligent phyſician is at no loſs for other remedies, which may be frequently adminiſtered with a greater probability of ſucceſs. In the treatment of every diſorder, it is neceſſary to ſingle out that remedy, which is found moſt ſuitable to the ſtage of the complaint. And here we have no occaſion to ſtart the queſtion, Whether the method and the means, by which the diſeaſe is checked and health reſtored, are, in the end, beſt calculated to prolong the life of the patient? Phyſicians profeſſionally look upon every diſeaſe as an evil, which cannot be too ſpeedily removed; and it would be to hazard the recovery of their patients, in many caſes, were they to waſte time in reflecting upon the conſequences of the remedy with reſpect to its influence on the duration of life. Hence the art of prolonging life, ſtrictly ſpeaking, is not a diſtinct branch of medicine, but rather forms a ſeparate art, and as ſuch is the common property of all: it ſhould therefore conſtitute a part of the education and ſtudies of every rational individual, whatever be his other engagements and occupations. The abſurd notion, that blood-letting is uſeful and neceſſary to the prolongation of human life, is ſtill pretty generally received among the common people of all countries. Neither the *good* nor the *bad* days, ſuperſti-

tiouſly marked in the almanacks for amuſing the vulgar, can palliate or juſtify the miſchiefs, with which this dangerous error is pregnant. Bleeding can be of ſervice only, when it is performed at a proper time; and to expreſs my opinion of it, in a few words, *it is always noxious to the healthy.*

The blood contains and affords to the bones, ligaments, tendons, membranes, muſcles, nerves, veſſels, in ſhort, to the whole organized body, all the parts, which form the bones, ligaments, tendons, &c. Each of theſe parts is evolved from the blood, and adapted to its proper place, in ſo artificial a manner, that the human mind is totally at a loſs to comprehend, how this operation is performed; neither have the reſearches of the moſt acute and attentive obſervers been able to account for it. And as the blood ſerves to repleniſh the diminution, and to make up the loſſes, which thoſe parts occaſionally ſuſtain, it may be conſidered as the original ſource of our whole organization. By its ſtimulating powers it alſo cauſes the heart and the arteries to contract; and by that means preſerves the circulating motion, by which it is propelled through all the parts of the body, for the purpoſes deſigned by nature.

Now, it requires little reflection to perceive, that he who waſtes this vital fluid, thereby obſtructs, and, as it were, cuts off the ſources of his ſupport and regeneration. And though it be true, that the blood evacuated by periodical bleedings is ſoon re-produced by the activity of the vital powers, yet this reſtora-

tion is not effected without conſiderable efforts, and at the expenſe of the whole machine. As this exertion, therefore, is a great preſſure upon the vital powers, it muſt of courſe be attended with a proportionate degree of their conſumption. It is too well known, that the corrupted part of the blood cannot be ſeparated from the maſs, ſo that the ſound and uncorrupted particles alone may remain behind. If the quality of the blood ever become vitiated and diſeaſed; if it be too thick and viſcous, or too acrid, and diſſolved, the whole maſs participates in the infectious taint; neither is it in the power of art, to contrive any method, by which the corrupted part may be kept aſunder, from that which is in a ſound ſtate. It would be equally unreaſonable to expect, that a ſpoiled caſk of wine could be cured of its tartneſs, by drawing or tapping the acid and corrupted portion from the top, and leaving the ſweet and wholeſome part behind. Laſtly, experience has ſhewn in numberleſs inſtances, collected from different obſervations, that perſons accuſtomed to frequent blood-letting are not only rendered more delicate in their conſtitutions, and thereby more ſubject to diſeaſes, but alſo that they die, for the moſt part, at an earlier age than others; and although caſes have occurred of ſome perſons, who, having been bled twice or four times a year, have nevertheleſs arrived at a conſiderable age, they can only prove, that veneſection was to them a proper medical remedy, perhaps adapted to their peculiar habit of

body; or that the activity of their vital powers, their mode of life, and other favourable circumstances, internal and external, may have been sufficient to counterbalance the dangerous consequences, resulting from the frequent loss of this essential fluid.

On the Doctrine of Transfusion.

At a time, when the shortness of life was imputed to a distempered state of the blood; when all diseases were ascribed to this cause, without attending to the *whole* of what relates to the moral and physical nature of man, a conclusion was easily formed, that a radical removal of the corrupted blood, and a complete renovation of the entire mass, by substitution, was both practicable and effectual. The speculative mind of man was not at a loss to devise expedients, or rather attempts, for effecting this desirable purpose; and this undoubtedly was one of the boldest, most extraordinary, and most ingenious attempts ever made to lengthen the period of human life. I allude here to the famous scheme of *transfusion*, or of *introducing the blood of one animal body into that of another;* a curious discovery, attributed to Andreas Libavius, Professor of Medicine and Chemistry in the University of Halle, who, in the year 1615, publicly recommended experimental essays to ascertain the fact. Libavius was an honest and spirited opposer of the Theosophic Sys-

tem, founded by the bombaſtic Paracelſus, and ſupported by a numerous tribe of credulous and frantic followers. Although Libavius was not totally exempt from the faſhionable follies of that age, ſince he believed in the tranſmutation of metals, and ſuggeſted to his pupils the wonderful powers of *potable gold;* yet he diſtinguiſhed rational Alchemy from the fanatical ſyſtems then in vogue, and zealouſly defended the former againſt the diſciples of Galen, as well as thoſe of Paracelſus. He made a number of important diſcoveries in Chemiſtry, and was unqueſtionably the firſt profeſſor in Germany, who read Chemical Lectures, upon pure principles of affinity, unconnected with the extravagant notions of the Theoſophiſts.*

* As this remarkable ſect was founded upon the doctrines of Paracelſus, during the latter part of the ſixteenth and the beginning of the ſeventeenth centuries; and as the ſociety known by the name of Roſecrucians, or Roſencrucians, has not been without its followers and propagators, in different ſhapes, even to the preſent time, I ſhall here preſent the reader with a conciſe account of the origin and tenets of that fanatical ſect.

We find this order firſt publicly announced to the world, in a book publiſhed in the German language, at Regenſburg, in the year 1614, with the following title: "*The Univerſal and General Reformation of the World, together with an Account of the famous Fraternity of the Roſencrucians.*" In the work is an intimation, that the members of the ſociety had been ſecretly at work, for a century preceding, and that they had come to the knowledge of many great and important ſecrets, which, if communicated to the world, would promote the happineſs of man. An adventurer of the name of CHRISTIAN ROSENKREUZ is ſaid to have founded this order, in the fourteenth century, after being previouſly initiated into the ſublime wiſdom of the Eaſt, during his travels in Egypt and Fez. According to what we can learn from this work, the intention of the founder, and the final aim of the ſociety, appear to have been to accumulate wealth and riches, by means of ſecrets known only to the members; and by a proper diſtribution of theſe treaſures among princes and potentates, to promote the grand ſcheme of the ſociety, by producing "*a general revolution of all things.*" In their "Confeſſion of Faith" are

The first experiments relative to the transfusion of the blood, appear to have been made, and that with great propriety, on the lower animals. The blood of the young, healthy, and vigorous, was transfused into the old and infirm, by means of a delicate tube, placed in a vein opened for that purpose. The effect of this operation was surprising and important: the aged and decrepit animals were soon observed to become more lively, and to move

many bold and singular dogmas; among others, that the end of the world is at hand; that a general reformation of men and manners will speedily take place; that the wicked shall be expelled or subdued, the Jews converted, and the doctrine of Christ propagated over the whole earth. The Rosencrucians not only believed that these events must happen; but they also endeavoured to accelerate the same by their exertions. To their faithful votaries and followers they promised abundance of celestial wisdom, unspeakable riches, exemption from disease, an immortal state of ever-blooming youth, and, above all, *the Philosopher's Stone*. Learning and culture of the mind were, by this order, considered as superfluous, and despised. They found all knowledge contained in the Bible: this, however, has been supposed rather a pretext to obviate a charge, which has been brought against them, of not believing in the Christian religion. The truth is, they consider themselves as superior to Divine Revelation, and believe every useful acquisition, every virtue, to be derived from the influence of the Deity on the soul of man. In this, as well as many other respects, they appear to be followers of Paracelsus, whom they profess to revere as a messenger of the Divinity. Like him, they pretend to cure all diseases, through *Faith* and the power of imagination;—to heal the most mortal disorders by a touch, or even by simply looking at the patient. The Universal Remedy was likewise a grand secret of the order, the discovery of which was promised to all its faithful members.

I think it unnecessary to enumerate any more of such impious fancies, if the founder of this still lurking sect, now partly revived, had not asserted with astonishing effrontery, that human life was capable of prolongation, like a fire kept up by combustible matter, and that he was in the possession of a secret, which could verify his assertion. It is evident, however, from the testimony of the above mentioned Libavius, a man of unquestionable veracity, that this doughty champion in Medical Chemistry, or rather Alchemy, Paracelsus, notwithstanding his vaunting assurances, died at Salzburg in Germany, in the Hospital of St. Stephen's, in 1541; and that his death was principally brought on by the irregular and dissolute mode of life, which he had for a long time pursued.

with greater eaſe and rapidity. By the indefatigable exertions of LOWER, in England, of DENIS, in France, and of MORITZ HOFFMAN, and others, in Germany, this artificial mode of renovating the life and ſpirits was ſucceſsfully followed up, and even brought to ſome degree of perfection. The vein uſually opened in the arm of a patient was reſorted to for the purpoſe of transfuſion; into this a ſmall tube was placed in a perpendicular direction; the ſame vein was then opened in a healthy individual, but more frequently in an animal, into which another tube was forced in a reclining direction; both the ſmall tubes were then ſlided into one another; and in that poſition the delicate act of transfuſion was ſafely performed. When the operation was completed, the vein was tied up in the ſame manner as in blood-letting. Sometimes a quantity of blood was diſcharged from the patient, previous to the experiment taking place. As few perſons however were to be found, who would agree to part with their blood to others, recourſe was generally had to animals, and moſt frequently to the calf, the lamb, and the ſtag. Theſe being laid upon a table, and tied ſo as to be unable to move, the operation was performed in the manner before deſcribed.

In ſome inſtances, the good effects of theſe experiments were evident and promiſing, while they excited the greateſt hopes of the future improvement and progreſs of this new art. But the increaſing abuſes, to which it led bold and inexpert practitioners, together

with the great number of cases, wherein it proved unsuccessful, induced the different governments of Europe to put an entire stop to the practice, by the strictest prohibitions. And, indeed, so long as the constitutions of men differ from each other materially as they now do, this is, and ever will be, a hazardous, if not a desperate remedy. The blood of every individual is *sui generis*, or of a peculiar nature, and suits or accords, as it were, with that body *only*, to which it belongs, and in which it is generated. Hence our hopes of prolonging human life, by artificial evacuations and injections, must necessarily be disappointed.

We are not however to suppose, that these and similar pursuits, during the times of which we treat as well as those which succeeded, were solely or chiefly followed by mere adventurers and fanatics. No; the greatest wits and geniuses of those times, together with the most learned and eminent men, deemed them objects worthy of their sedulous attention. Lord Bacon, that sagacious explorer of the arcana of Nature, that luminary of science and talents, represents life as a flame, which is continually wasted by the surrounding atmosphere, and asserts that *all the fluids* of the body may from time to time be renovated, and require such renovation. The remedies, which he prefers and prescribes, are conformable to this hypothesis. To prevent the *external* consumption produced by the circumambient air, he recommends the bath, and, after quitting it, friction with oils and salves, with a view

to fortify the pores, and exclude the influence of the external air. As means to counteract the *internal* waſte of the body, he inculcates the propriety of a cooling, moderate diet, and, above all, extols the narcotic or ſoporific remedies, as the true balm of life, and the beſt adapted to attain the deſired effect. Tranquillity of mind, and a cooling diet, may no doubt be very neceſſary in ſome caſes, where there is too great an irritability of temperament, and where the circulation of the blood is too rapid. But to a phlegmatic habit, they will rather be injurious than ſerviceable. Narcotic remedies, too, are but ill qualified to cool and to moderate the body, ſince they never fail to act as a certain ſtimulus, are attended with heat and relaxation, and therefore muſt accelerate the conſumption of the vital powers: that ſleep, alſo, which is artificial, and which they have a tendency to procure, cannot upon the whole be ſalutary. It is no leſs evident, that the vital power ſupplied by heat or *caloric* (which is principally evolved from the air,* and introduced into the body by means of reſpiration) muſt be much leſs conſiderable during ſleep, than while we are awake.

For improving the fluids of the aged, and renovating the dry and corrupted part of them, Lord Bacon thinks nothing can be put in competition with powerful laxatives, and

* We ſhall have occaſion to inſtitute a particular inquiry into the properties of *air*, in the next Chapter, from which it will appear, that one ſpecies of air is more noxious to the vital power than another, and that there is a greater conſumption of it in one, than in the other.

adviſes the uſe of a full courſe of them, every two or three years at leaſt. Theſe remedies are, in his opinion, the beſt qualified to evacuate vitiated humours, and afterwards to produce, in lieu of them, milder and more healthy juices. The exhauſted, and, as it were, thirſty veſſels may be repleniſhed and ſtrengthened, according to his ideas, by a refreſhing and nouriſhing diet.

However plauſible this theory may appear, the execution of it is impracticable, and the baſis on which it reſts, merely conjectural. If it were poſſible to withdraw the corrupted part of the fluids from the body, by means of evacuants, and at the ſame time to remove the *cauſes*, which produce this tendency to corruption, then the doctrine laid down by Lord Bacon would deſerve every praiſe, and the moſt minute attention to its merits. But it ought to be obſerved, that the activity and energy of *the whole* organized ſyſtem is indiſpenſably neceſſary in the proceſs of ſeparating the noxious or uſeleſs particles. As, therefore, laxatives remove only the more watery fluids; as they have a bad effect on the ſtomach and inteſtines, by rendering them too irritable, and conſequently leſs tonic or vigorous; as the bile, a fluid ſo eſſential to the concoction of food and aſſimilation of alimentary matter, is thereby uſeleſsly waſted; as the balance between the ſolid and fluid parts of the body is in this manner deſtroyed; and as, upon the whole, the vital powers muſt ſuſtain a conſiderable degree of diminution in affording ſupplies, to repair what is

loſt;—the precarious nature of *evacuants*, as the means of prolonging human life, appears too evident to require further illuſtration.

It is not, therefore, in ſuch remedies as theſe, which can only be employed with ſafety, where a judicious attention is paid to the caſe and circumſtances of the patient, that we ought to conſide, as the moſt proper to prolong the period of our exiſtence: we muſt ſearch for means leſs dangerous and more effectual.

There is a pretty numerous claſs of men, who profeſs to calculate the length of their lives, not ſo much by the number of years or days they have lived, as by the uſe they have made of them, or, to ſpeak more plainly, by the quantum of ſenſual pleaſure they have enjoyed. Perſons of this caſt, though fully ſenſible of the unavoidable conſequences, are not averſe to what is called *faſt living*. Accuſtomed to reckon only upon the enjoyments of life, they wiſh to attain theſe in a ſhorter period of time, and in more rapid ſucceſſion, rather than ſlowly and by degrees; eſpecially as the duration of our life ever remains uncertain. Men of this ſanguine character may be aptly compared to a plant forced in a hot-houſe, which will indeed grow up ſuddenly, but, if contraſted with a plant of ſlower growth, or any kind of fruit which gradually ripens to maturity, will be found much degenerated, neither poſſeſſing the ſolidity and ſtrength of ſtalk, nor the aſtringent, aromatic, and other properties, in that vigour and perfection, which we find in vegetables

raiſed in the open air. Many ſimilar hot-houſe plants are diſcoverable among men, in the different ſtages of ſociety. In childhood, they diſplay the premature acquirements of youth; in youth, they ſhow the ſenſe, ambition, and other qualifications of manhood; and before they have well paſſed through the prime of virility, they are either ſnatched away by untimely death, or their faculties become blunted and impaired.

It is the unalterable plan of Nature, to proceed, in every one of her operations, by degrees; all outrage and extravagance militate againſt her eſtabliſhed laws. The *true* enjoyment of life does not conſiſt in the haſty purſuit of pleaſure, nor in the intemperate indulgence of our ſenſual appetites. The epicure is ſoon laid up by dangerous ſurfeit, reſulting from indulgence in a variety of highly-flavoured diſhes, and is obliged to ſpend that time in reluctant confinement, which he propoſed to devote to his bottle, to his debauchery, or to ſome ſcene of gaiety; he is compelled to lead as it were a vegetable life, ſcarcely pitied by his friends, and, in the fulleſt ſenſe of the word, to *exiſt* rather than to *live*.

In one reſpect, we have little occaſion to extol our own enlightened age, at the expenſe of thoſe which are ſo frequently and juſtly termed *dark*: I allude to the bold and artful deſigns of impoſture, and particularly *medical impoſture*. We daily ſee illiterate and audacious empirics ſport with the lives of a credulous public, that ſeem obſtinately reſolved

to ſhut their ears againſt all the ſuggeſtions of reaſon and experience.

The hoſt of empirics and mountebanks, to be found in our great cities, and the tinctures, eſſences, and balms of life, ſo much in vogue with even the poliſhed claſſes; the celeſtial beds, the enchanting magnetic powers, lately introduced into this country by *Meſſmer* and his numerous diſciples; the prevailing indifference to all dietetic precepts; the ſingular impoſition practiſed on many females, in perſuading them to wear the inert *acromatic belts* (which ſhall be further noticed in the eighth chapter); the ſtrange infatuation of the opulent to pay *five guineas* for a pair of *metallic tractors*,* not worth a ſixpence; the tables for

* The Monthly Reviewers, in examining Mr. Perkins's pamphlet on that ſubject, after having informed the reader that a Dr. Willard, an American practitioner, the author himſelf, and four other perſons, had *purpoſely* burnt themſelves with a red-hot piece of iron, ſo that bliſters were raiſed, in order to *experience* the anodyne effects of the tractors, and that all theſe living witneſſes obtained relief in a few minutes, proceed in the following words:

"This zeal for knowledge is truly edifying, eſpecially as the tractors are generouſly preſented to the public at *only* five guineas a pair; and it is clear that one pair would ſuffice to cure all the burns and ſcalds of a large pariſh. Why are not ſuch luculent experiments repeated here? If Mr. P. or any admirer of the diſcovery, would ſubmit to have a red-hot poker run into ſome part of his body not neceſſary to life (into *that part where honour's lodged*, according to Butler, for example,) in any public coffee-houſe within the bills of mortality, and would afterwards heal the wound in preſence of the company, in ten minutes, or in half as many hours, by means of the tractors, the moſt ſtony-hearted infidel could not reſiſt ſuch a demonſtration. Why trifle with internal inflammations, when ſuch an outward and viſible ſign might be afforded?

"Mr Perkins has taken ſome pains, in the firſt part of his pamphlet, to ſhew that the operation of his rods is not derived from animal magnetiſm. In our opinion, this is an unneceſſary piece of trouble in England, where there is a conſtant ſucceſſion of ſimilar pretenſions. The *virgula divinatoria*, and the *baguette* of the juggler, are the genuine prototypes of this myſtery. We were indeed rejoiced on Dr. Perkins's account, to find that the Connecticut Society

blood-letting, and other abſurdities ſtill inſerted in popular almanacks, ſufficiently evince, that this is far from being the "Age of Reaſon;" that the Temple of Superſtition is yet thronged with numberleſs votaries; that human reaſon is ſtill a ſlave to the moſt tyrannical prejudices; and that there is no readier way to excite general attention and admiration, than to affect the myſterious and the marvellous.

The viſionary ſyſtem of JACOB BÖHMEN has lately been revived in ſome parts of Germany. The ghoſts and apparitions, which have diſappeared from the times of THOMASIUS and SWEDENBORG, have again, it ſeems, left their graves, to the great terror of fanaticiſm. New and unheard-of prophets announce their Divine miſſion, and, what is worſe, find implicit believers! The inventors of ſecret medicines are rewarded by patents, and obtain no ſmall celebrity; while ſome of the more conſcientious, but leſs fortunate adepts, endeavour to amuſe the public with *popular ſyſtems of medicine!* Theſe, however,

had only denounced him as a *Meſmeriſt*; we trembled leſt he ſhould have been put into the inquiſitorial hands of the old women, as a white witch.

"To trace the relations and dependencies of projects ſimilar to that of Dr. Perkins, would now be a work of more labour than utility. The fund of public credulity is an inexhauſtible reſource for thoſe who can reſolve to levy contributions on it. In vain is the ſpirit of quackery exorciſed in one form; it riſes again immediately, '*with twenty ghaſtly murders on its head, to puſh us from our ſtools.*' We, who have contemplated the progreſs of real knowledge, during a long courſe of years, have ſeen many bubbles like this glitter for a moment, and then diſappear for ever. People may talk of *Meſmeriſm* or *Perkiniſm*; but we conſider all ſuch varieties as belonging to the old and extenſive claſs, *Charlataniſm*."—*Monthly Review*, April, 1799, p. 463 and 464.

are harmleſs, in compariſon with the daring experiments, of which I ſhall briefly ſketch the hiſtory.

One of the moſt dazzling and ſucceſsful Inventors in modern times was MESSMER, who began his career of Medical Knight-errantry at Vienna. His houſe was the mirror of high life; the rendezvous of the gay, the young, the opulent, enlivened and entertained with continual concerts, routs, and illuminations. At a great expenſe he imported into Germany the firſt *Harmonica* from this country; he eſtabliſhed cabinets of natural curioſities, and laboured conſtantly and ſecretly in his chemical laboratory; ſo that he acquired the reputation of being a great Alchemiſt, a philoſopher ſtudiouſly employed in the moſt uſeful and important reſearches.

In 1766 he firſt publicly announced the object and nature of his ſecret labours:—all his diſcoveries centered in the *magnet*—which, according to his hypotheſis, was the greateſt and ſafeſt remedy hitherto propoſed againſt all diſeaſes incident to the human body. This declaration of Meſſmer excited very general attention; the more ſo, as about the ſame time he eſtabliſhed an hoſpital in his own houſe, into which he admitted a number of patients *gratis*. Such diſintereſtedneſs procured, as might be expected, no ſmall addition to his fame. He was, beſides, fortunate in gaining over many celebrated phyſicians to eſpouſe his opinions, who laviſhed the greateſt encomiums on his new art, and were inſtrumental in communicating to the public a

number of successful experiments. This seems to have surpassed the expectations of Messmer, and induced him to extend his original plan farther than it is likely he first intended. We find him soon afterwards assuming a more dogmatical and mysterious air, when, for the purpose of shining exclusively, he appeared in the character of a *Magician*—his pride and egotism would brook neither equal nor competitor.

The common Loadstone, or Mineral Magnet, which is so well known, did not appear to him sufficiently important and mysterious: he contrived an unusual and unknown one, to the effect of which he gave the name of '*Animal Magnetism.*' After this he proceeded to a still bolder assumption, every where giving it out, that the inconceivable powers of this subtle fluid were centered in his own person. Now the Mono-drama began; and Messmer, at once the hero and chorus of the piece, performed his part in a masterly manner. He placed the most nervous, hysteric, and hypochondriac patients opposite to him; and by the sole act of stretching forth his finger, made them feel the most violent shocks. The effects of this wonderful power excited universal astonishment; its activity and penetrability being confirmed by unquestionable testimonies, from which it appeared, that blows, resembling those given by a blunt iron, could be imparted by the operator, while he himself was separated by two doors, nay even by thick walls. The very looks of this Prince of Jugglers had the power to excite painful cramps and twitches.

This wonderful tide of ſucceſs eaſily inſtigated his indefatigable genius to bolder attempts, eſpecially as he had no ſevere criticiſms to apprehend from the ſuperſtitious multitude. He roundly aſſerted things, of which he never offered the leaſt ſhadow of proof; and for the truth of which he had no other pledge to offer, but his own high reputation. At one time he could communicate his magnetic power to paper, wool, ſilk, bread, leather, ſtones, water, &c.—at another he pronounced, that certain individuals poſſeſſed a greater degree of ſuſceptibility for this power than others.

It muſt be owned, however, to the honour of his cotemporaries, that many of them made it their buſineſs to encounter his extravagant pretenſions, and to refute his dogmatical aſſertions with the moſt convincing arguments. Yet he long enjoyed the triumph of being ſupported by blind followers; and their too great number completely overpowered the ſuffrages of reaſon.

Meſmer perceived at length, that he ſhould never be able to reach, in his native country, the point which he had fixed upon, as the term of his magnetical career. The Germans began to diſcredit his pompous claims; but it was only after repeated failures in ſome important promiſed cures, that he found himſelf under the neceſſity of ſeeking protection in Paris. There he met with a moſt flattering reception, being careſſed, and in a manner adored, by a nation which has ever been extravagantly fond of every thing new, whim-

fical, and myſterious. Meſſmer well knew how to turn this national propenſity to his own advantage. He addreſſed himſelf particularly to the weak; to ſuch as wiſhed to be conſidered men of profound knowledge, but who, when they are compelled to be ſilent from real ignorance, take refuge under the impenetrable ſhield of myſtery. The faſhionable levity, the irreſiſtible curioſity, and the peculiar turn of the Pariſians, ever ſolicitous to have ſomething intereſting for converſation, to keep their active imagination in play, were exactly ſuited to the genius and talents of the inventor of Animal Magnetiſm. We need not wonder, therefore, if he availed himſelf of their moral and phyſical character, to inſure eaſy entrance to his doctrines, and ſucceſs to his pretended experiments: in fact, he found friends and admirers, wherever he made his appearance.*

* His firſt advertiſement was couched in the following high-ſounding terms: "Behold a diſcovery which promiſes unſpeakable advantages to the human race, and immortal fame to its author! Behold the dawn of an univerſal revolution! A new race of men ſhall ariſe, ſhall overſpread the earth, to embelliſh it with their virtues, and render it fertile by their induſtry. Neither vice, nor ignorance, ſhall ſtop their active career; they will know our calamities only from the records of hiſtory. The prolonged duration of their life will enable them to plan and accompliſh the moſt laudable undertakings. The tranquil, the innocent gratifications of that primeval age will be reſtored, wherein man laboured without toil, lived without ſorrow, and expired without a groan! Mothers will no longer be ſubject to pain and danger during their pregnancy and child-birth; their progeny will be more robuſt and brave; education's now rugged and difficult path will be rendered ſmooth and eaſy; and hereditary complaints and diſeaſes will be for ever baniſhed from the future auſpicious race. Parents will impart to them the activity, energy, and graceful limbs and demeanour of the primitive world. Fathers, rejoicing to ſee their poſterity of the fourth and fifth generations, will only drop, like fruit fully ripe, at the extreme point of age! Animals and plants, no leſs ſuſceptible than man of the magnetic power,

What splendid promises! what rich prospects! Messmer, the greatest of philosophers, the most virtuous of men, the physician and saviour of mankind, charitably opens his arms to all his fellow-mortals, who stand in need of comfort and assistance. No wonder that the cause of Magnetism, under such a zealous apostle, rapidly gained ground, and obtained every day large additions to the number of its converts. To the gay, the nervous, and the dissipated of all ranks and ages, it held out the most flattering promises. Men of the first respectability interested themselves in behalf of this new philosophy; they anticipated, in idea, the more happy and more vigorous race to proceed, as it were by enchantment, from the wonderful impulsive powers of Animal Magnetism. Nay, even the French Government was so far seduced by these flattering appearances, as to offer the German Adventurer *thirty thousand livres* for the communication of his secret art. He appears, however, to have understood his own interest better than thus to dispose of his hypothetical property, which upon a more accurate investigation might be excepted against, as consisting of unfair articles of purchase. He consequently returned the following answer to the credulous French Ministers:—

will be exempt from the reproach of barrenness and the ravages of distemper. The flocks in the fields, and the plants in the gardens, will be more vigorous and nourishing, and the trees will bear more beautiful and luscious fruits. The human mind, once endowed with this elementary power, will probably rise to still more sublime and astonishing effects of nature:—Who indeed is able to pronounce, with certainty, how far this salutary influence may extend?

"That Dr. M. considered his art of too great importance, and the abuses it might lead to, too dangerous for him at present to make it public; that he must therefore reserve to himself the time of its publication, and mode of introducing it to general use and observation; that he would first take proper measures to initiate or prepare the minds of men, by exciting in them a susceptibility of this great power; and that he would then undertake to communicate his secret gradually, which he meant to do without hope of reward."

Messmer, too politic to part with his secret for so small a premium, had a better prospect in view; and his apparent disinterestedness and hesitation served only to sound an over-curious public; to allure more victims to his delusive practices; and to retain them more firmly in their implicit belief. Soon after this, we find Messmer easily prevailed upon to institute a private society, into which none were admitted, but such as bound themselves by a vow to perpetual secrecy. These pupils he agreed to instruct in his important mysteries, on condition of each paying him a fee of *one hundred louis*. In the course of six months, having had not fewer than three hundred such pupils, he realized a fortune of *thirty thousand louis*. It appears, however, that his disciples did not long adhere to their engagement: we find them separating gradually from their professor, and establishing schools for the propagation of his system, with a view, no doubt, to reimburse themselves for their

expenſes in the acquiſition of the magnetiſing art. But few of them having clearly underſtood the enigmatic terms and myſterious doctrines of their foreign maſter, every new adept exerted himſelf to excel his fellow-labourers, in additional explanations and inventions: others, who did not poſſeſs, or could not ſpare the ſum of one hundred louis, were induſtriouſly employed in attempts to diſcover the ſecret by their own ingenuity; and thus aroſe a great variety of magnetical ſects. At length, however, Meſſmer's authority became ſuſpected; his pecuniary acquiſitions were now notorious, and our *humane* and *diſintereſted philoſopher* was aſſailed with critical and ſatirical animadverſions from every quarter. The futility of his proceſs for medical purpoſes, as well as the bad conſequences it might produce in a moral point of view, ſoon became topics of common converſation, and at length excited even the apprehenſions of Government. One dangerous effect of the magnetic aſſociations was, that young voluptuaries began to employ this art, to promote their libidinous and deſtructive deſigns.

As ſoon as matters had taken this ſerious turn, the French Government, much to its credit, deputed four reſpectable and unprejudiced men, to whom were afterwards added four others of great learning and abilities, to inquire into, and appreciate the merits of the new diſcovery of animal magnetiſm. Theſe philoſophers, among whom we find the illuſtrious names of Franklin and Lavoiſier, recognized indeed very ſurpriſing and unexpected phe-

nomena in the physical state of magnetised individuals; but they gave it as their opinion, that the power of imagination, and not animal magnetism, had produced these effects. Sensible of the superior influence, which the imagination can exert on the human body, when it is effectually wrought upon, they perceived, after a number of experiments and facts frequently repeated, that *Contact* or Touch, *Imagination*, *Imitation*, and *excited Sensibility*, were the real and *sole* causes of those phenomena, which had so much confounded the illiterate, the credulous, and the enthusiastic; that this boasted magnetic element had no real existence in nature; consequently that Mesmer himself was either an arrant Impostor, or a deceived Fanatic.

In the mean time, this magnetising business had made no small progress in Germany; a number of periodical and other publications vindicated its claims to public favour and attention; and some literary men, who had rendered themselves justly celebrated by their former writings, now appeared as bold and eager champions in support of this mystical medley. The ingenious LAVATER undertook long journies for the propagation of Magnetism and Somnabulism*—and what manipulations and other absurdities were not practised on hysterical young ladies in the city of Bre-

* *Somnabulism* is the art of exciting sleep in persons under the influence of Animal Magnetism, with a view to obtain, or rather extort, during this artificial sleep, their verbal declarations and directions for curing the diseases of body and mind. Such was the rage for propagating this mystical nonsense, that even the pulpit was occasionally resorted to, in order to make—not fair penitents, but fair proselytes to the system.

men? It is further worthy of notice, that an eminent phyſician of that place, in a recent publication, does not ſcruple to rank magnetiſm among medical remedies! Yet it muſt be confeſſed, that the great body of the learned, throughout Germany, have endeavoured, by ſtrong and impartial criticiſm, to oppoſe and refute Animal Magnetiſm, conſidered as a medical ſyſtem. And how ſhould it be otherwiſe, ſince it is highly ridiculous to imagine, that violent agitations, ſpaſms, convulſions, &c. which are obviouſly ſymptoms of a diſeaſed ſtate, and which muſt increaſe rather than diminiſh the diſpoſition for nervous diſeaſes, can be the means of improving the conſtitution, and ultimately prolonging human life? Every attentive perſon muſt have obſerved, that too frequent intercourſe between nervous and hypochondriac patients is infectious; and, if this be the caſe, public aſſemblies for exhibiting perſons magnetiſed can neither be ſafe nor proper. It is no ſmall proof of the good ſenſe of the people of this country, that the profeſſors of this fanatical art could not long maintain their ground; that they were ſoon expoſed to public ridicule on the ſtage; and that the few who are ſtill left, are baniſhed to dark alleys and obſcure cellars of the metropolis.

Some other plans for the prolongation of life deſerve to be mentioned, though ſcarcely leſs abſurd than the preceding.

The French Count of ST. GERMAIN made large ſums, by vending an artificial Tea, chiefly compoſed of Yellow-Saunders, Senna-leaves,

and Fennel-seed; puffing it off by the specious name of *Tea for prolonging life*. It was once swallowed with great avidity all over the continent; but its celebrity was short-lived, and its promised beneficial effects were never realized.

Another impudent adventurer, the *Chevalier* D'AILHOUD, presented the world with a Powder, which met with so large and rapid a sale, that he was very soon enabled to purchase a whole *Comté*. Instead, however, of adding to the means of securing health and long life, this famous powder is well known to produce constant indisposition, and at length to cause a most miserable death; being compounded of certain drugs, which are clearly of a poisonous nature, although slow in their operation. And yet there are on the continent, even to this day, several respectable families, who persist in the use of this deleterious powder, from an ill-judged partiality for its inventor.

COUNT CAGLIOSTRO, that luminary of modern Impostors and Debauchees, prepared a very common stomachic Elixir, which he sold at an enormous price, by the name of "*Balm of Life;*" pretending, with unparalleled assurance, that by the use of this medicine he had attained an age exceeding 200 years, and that he was thereby rendered invulnerable to all attempts by poison. These bold assertions could not fail to excite very general attention. During his residence at Strasburg, while he was descanting, in a large and respectable company, on the virtues of his an-

tidote, his pride was mortified by a severe check. A Physician who was present, and had taken part in the conversation, quitting the room privately, went to an Apothecary's shop, where having ordered two pills to be made of an equal size, and agreeably to his directions, he suddenly appeared again before Cagliostro, and addressed him as follows: "Here, my worthy Count, are two pills; the one contains a mortal poison, the other is perfectly innocent; choose one of these, and swallow it, and I engage to take that which you leave. This will be considered as a decisive proof of your medical skill, and enable the public to ascertain the efficacy of your extolled Elixir." Cagliostro took the alarm, made a number of apologies, but could not be prevailed upon to touch the pills. His opponent swallowed both immediately, and proved by his Apothecary, that they might be taken with the most perfect safety, being only made of common bread. Notwithstanding the shame of this detection, Cagliostro still retained numerous advocates and partisans, by circulating eccentric notions, and concealing his real character by a variety of tricks.

The inspired Father Gassner, of Bavaria, ascribed all diseases, lameness, palsy, &c. to diabolical agency, contending from the history of Job, Saul, &c. recorded in Sacred Writ, that Satan, as the grand enemy of mankind, has a power to embitter and shorten our lives by diseases. Vast numbers of credulous people flocked to this fanatic, for the purpose of obtaining relief. Whole cargoes

of patients, afflicted with nervous and hypochondriac complaints, beſieged him as it were in his quarters every day; all ſtimulated and heated with a wild imagination, all eager to view and to acknowledge the works of Satan! Men of literary character, even the Natural Philoſophers of Bavaria, were hurried away by the ſtream, and completely blinded by this ſanctimonious Impoſtor.

It is no leſs aſtoniſhing than true, that in the year 1794, a COUNT THUN, at Leipzig, pretended to perform miraculous cures on gouty, hypochondriac, and hyſterical patients, merely by the impoſition of his ſacred hands. He could not, however, raiſe many diſciples in a place, that abounds with Sceptics and Unbelievers.

It would be treſpaſſing too much on the limits I have propoſed to myſelf, were I to enumerate the various remedies advertiſed in the daily papers, both Britiſh and foreign, under the fictitious and fraudulent pretence of prolonging life. I ſhall therefore only remark, in general, that all theſe celebrated ſpecifics are obviouſly compoſed upon wrong principles; inaſmuch as their inventors proceed on the hypothetical idea, that *diſeaſe is the only cauſe of ſhortening life*; and, being thus miſtaken, it is no wonder that they carry the *ſtrengthening* or *bracing* ſyſtem to an extravagant degree.

The higheſt point of bodily vigour and health may of itſelf contribute to ſhorten life; although no external cauſes ſhould appear as co-operating to haſten the conſump-

tive process. Nay, the very remedies we use, and the regimen we attend to, for the prevention or cure of diseases, may be of such a nature as to promote that consumption.

Absurdity of Specific Remedies.

From the doctrines now laid before the reader, I hope I shall not be thought unreasonable, in drawing this conclusion :—That the plans for prolonging human life are generally erroneous and injudicious ; that all *artificial* means have rather a tendency to shorten than to prolong it ; and that we can never safely expect the accomplishment of this great object, unless we pursue methods more consonant to nature, more verified by experience.

The truth of this inference will be more evident, when we come to inquire into the *conditions*, which are essentially requisite to the attainment of a long life.

The *first* of these is a certain bodily and mental disposition to longevity, not easily defined, yet sufficiently known and understood. In whatever this disposition may consist, it is a matter of astonishment, and inexplicable by the laws of animal economy, that many individuals, frequently under the most unfavourable circumstances, and in the most unwholesome climates, have attained to a great and happy age. It may indeed be confidently affirmed, that, without this principal requisite, all other

advantages are often of no avail; the moſt ſalubrious country air, a diſtrict abounding with aged inhabitants, a rigid adherence to the diet of Cornaro, a regular courſe of exerciſe and recreations, with the beſt art of the phyſician, are not alone ſufficient to inſure the felicitous proſpect of a long and healthy life.*

Secondly: It is certain that there is, in moſt caſes, a ſort of hereditary diſpoſition to longevity; an innate principle or quality, which, like many family diſeaſes, is propagated from one generation to another. Perhaps nine out of ten old perſons could make it appear, that their parents and anceſtors alſo lived to a great age; a reaſon which may be admitted without having recourſe to any material ſubſtance, as the cauſe or effect of this inherent virtue.

The *third* requiſite to longevity is a *perfect birth* of the child, and a proper ſubſequent conduct in the mother; upon which ſubject it is not my intention to expatiate in this place. That acute phyſiologiſt, Lord Bacon, ſomewhere remarks, "that children partake more of the nature of the mother, the longer

* If theſe rational means be unavailing to inſure longevity, ſtill more ſo are thoſe miraculous remedies introduced by ſuperſtition. The ancients conceived the idea of a *principle of life*, which they compared to a radical fluid;—the Alchemiſts expected to find this *original entity* in *gold*, by the uſe of which they pretended that the human body might acquire the ſolidity and durability of that metal. Others traced the germ of life in bodies of conſiderable duration; in plants and animals; in the wood of the Cedar, and in the fleſh of the Stag. BOERHAAVE has made a facetious remark upon the ſubject: "This notion," ſays he, "is juſt as ridiculous as that of the man, who, in order to prepare himſelf for the buſineſs of a running footman, is ſaid to have lived for ſome time entirely on the fleſh of hares; hoping thus to ſurpaſs all his fellows in agility."

time she has nursed them; and that those children which most resemble the mother, will be generally found to have a claim to longevity."

Fourthly: A gradual, and not too precipitate culture of the physical and mental faculties may be properly considered as an excellent preliminary step towards prolonging life. The age of man bears a certain proportion to the growth of his various powers; and the longer we can protract the different stages of life, the more extended will be the whole compass of our existence. As it is evidently the design of nature, that man should live longer than most of the lower animals, he of course requires a greater space of time, to develope the faculties both of mind and body. Animals, which arrive soon at the perfection of their nature and form, live but a short time. Man requires upwards of twenty, and according to some, twenty-five years, before he attains to full maturity; and if it be a rule of nature, that animals in general live eight times the number of years, which is requisite to the attainment of their perfect growth, a strong presumption arises, that the age of man might be extended to nearly two hundred years. In the works of the illustrious Bacon, and particularly in his "Historical View of Life and Death," are given many strong arguments to confirm this assertion. Surprising as it may appear to some, there is a possibility at least, if not a probability, that the term of human life might be still further extended, if mankind could by any means be persuaded to re-

turn to that primeval ſtate of nature, from which hiſtory and tradition have furniſhed us with ſuch aſtoniſhing and almoſt incredible inſtances of longevity. It is not my intention here to inquire into the degree of credit, which may be due to the accounts of ſome extraordinary facts of individual longevity, recorded by the ſacred hiſtorian; as the learned vary much in their opinion, relative to the mode of computation, and whether the Solar, the Arabic, or the Lunar year, or a ſtill ſhorter meaſure of time, is alluded to. This, at leaſt, ſeems to be generally admitted, that the antediluvians enjoyed an enviable, uninterrupted ſtate of health; that their vegetable aliment, and general mode of living, were extremely ſimple and no wiſe prejudicial; that the conſtitution and temperature of the globe itſelf muſt have been greatly affected and deteriorated, in conſequence of the Flood, or other cauſes of which we are ignorant; and, laſtly, that thoſe impetuous and inordinate appetites and paſſions, which, like flames, may now be ſaid to conſume the powers of life, were then either leſs violent, or exerted their baneful influence at a much later period of life.

Nature reſents every outrage committed on her treaſures, and ſeldom fails to puniſh the tranſgreſſors with lingering diſeaſe, or early diſſolution. This obſervation may be applied to the moral as well as the phyſical faculties of man. It is commonly ſaid, and not without ſome degree of truth, that very forward

children seldom live to any age; and that too early an exertion of mental powers is in most cases destructive. The same remark holds good in what relates to the body. The inhabitants of hot climates, who frequently marry at the age of ten and twelve, or twelve and fourteen, begin to be old at thirty, and rarely survive the sixtieth year. Every thing which hastens the evolution of the natural powers, every exertion of strength, disproportionate to the ability of the individual, should be carefully avoided, as of a dangerous tendency. Hence the great art of education, the great art of living, consists in following the path of nature.

Fifthly: We should constantly inure ourselves to the habits of supporting and resisting the various impressions of external agency.—Some persons who have paid a very rigid attention to diet, have notwithstanding been unable to reach even a middling age; while others, who have been addicted to the most irregular and extravagant courses, have been observed to live to one very advanced. Hence arise contradictory maxims in dietetics, which can only be reconciled by deciding chemically between the two extremes, and ascertaining pretty nearly the absolute and relative salubrity of things. All deviations from the rules of diet are in a certain degree hurtful; although these may, in most cases, have only a limited value. Many epicures have been known to reach their seventieth and eightieth year, if they have once survived a certain

critical period of their lives.* As soon as the body becomes accustomed to the use of certain things, at first disagreeable and perhaps hurtful, the noxious tendency will not only be removed, but we shall find our frame hardened and strengthened by the habit of using them. Nature must stand many a shock, if she would familiarize herself to the vicissitudes of climate and opposite modes of life, but every victory she gains in these encounters, will be a means of rendering her more vigorous and unconquerable. How could the sublime mind of FREDERIC THE GREAT have remained so long in its earthly vehicle, if he had not improved, by constant culture and discipline, his original disposition to a long life? A thousand other men, who have endured as much exercise of body and exertion of mind in their younger years, have yet not attained to any remarkable age.—Severe and obstinate diseases have also been thought, in many instances, to contribute to the prolongation of life: this is at best, however, but a doubtful point; although it cannot be denied, that many sick persons have, to all appearance, acquired additional

* Experience shows, that there is a particular term of life which, if we can pass in the fullness of health and vigour, leaves the greatest probability of living to a considerable age. In the female sex, this period generally arrives at, or before, the fiftieth year; in the male, it is about the sixtieth year. GELLIUS, a medical author of credit, asserts, from observations founded on long experience, that the sixty-third year is, to most constitutions, a critical and dangerous one.—The Egyptians called this epocha *Androclos*, because man begins from that time to experience a rapid decay of strength and energy. Others, rather more superstitiously, maintained that, about this period, many individuals die, or at least are subject to severe attacks of disease.—The Emperor AUGUSTUS received the congratulations of his friends, on having survived this trying period.

ſtrength and ſpirits, after having recovered from a diſtreſſing quartan ague, or ſome threatening pulmonary diſorder.

Sixthly: We may take notice of a certain *ſteady and equal progreſs through life*, as highly conducive to the great object in view, whether it flows in the manner of a gentle ſtream, or reſembles the more active courſe of a rapid river. The mind, when accuſtomed to certain ſituations and purſuits, which almoſt conſtantly affect it in an uniform manner, is moſt likely to preſerve its reaſoning powers unimpaired and ſtrong. He whom neither violent joy convulſes, nor deep melancholy corrodes, whoſe drama of life is not chequered by too ſudden viciſſitudes, may, with ſome probability, expect a long enjoyment of that life, to which he has become ſo habituated. There are many whoſe days quietly glide away, like thoſe of a ſimple ruſtic, in continual ſameneſs: ſuch perſons, it is obſerved, generally live to a great age.

Seventhly: A very neceſſary cauſe of the attainment of an advanced age, is a ſound ſtate of digeſtion. In very old perſons, we generally find the digeſtive organs in excellent condition; nor is there a ſurer ſymptom of approaching diſſolution, than complaints in the ſtomach, or frequent returns of indigeſtion. The Swiſs are indebted, it is thought, to the vigorous tone of their digeſtive powers, for the long preſervation of their lives, in general, and for the great number of aged perſons among them. Milk and vegetable food ſeem remarkably well adapted to invig-

orate the ſtomach. To effect the ſame purpoſe, Lord Bacon adviſes old people to have recourſe to ſtrengthening baths, fomentations, and ſimilar *external* remedies, which operate upon the abſorbent ſyſtem. At the ſame time, a thin but nouriſhing and moderate diet ſhould be obſerved, in order to ſpare the organs of digeſtion.

Eighthly, and laſtly: We may recommend equanimity, or that ſtate of the mind, when, from the happy nature of its purſuits, it is not diſquieted by too violent exertions. In the literary profeſſions, and particularly among ſuch individuals as are placed in eaſy circumſtances, we diſcover as many inſtances of longevity, as in the more laborious occupations. It was remarked by the Ancients, that grammarians and rhetoricians commonly attained a great age. The mind being engaged in ſcientific purſuits, and other objects in which it finds pleaſure, ſuch as converſation on literary and mixed topics, collecting the productions of nature, a continual ſeries of mental reſearch, diverſifying the purſuits or amuſements, yet gradually and conſtantly perſevering in exertions towards the attainment of ſome principal object—all ſupply the vital power, as it were, with materials, like the cruſe of oil, which proved a never-failing ſupport to the widow of *Sarepta*. On the other hand, it is a general remark, that deep thinkers, ſpeculative philoſophers, and thoſe whoſe powers are continually abſorbed in abſtruſe inquiry, ſoon feel the effects of age, from the great exertions of their mental powers. This muſt

be underſtood, however, with exceptions, as in the caſes of Sir Isaac Newton, Haller, Euler, and the pride of his nation and age, the profound and venerable Kant, ſtill living at Kœnigſberg.

I venture to ſay thus much on the various rules and precautions requiſite to attain a long and healthful life. Some of the particulars are, no doubt, found united in a certain proportion of the individuals, who arrive at a reſpectable age. It is commonly remarked alſo, that the inhabitants of mountainous countries, for the moſt part live to a greater age than thoſe of plain and, particularly, marſhy diſtricts. This is in part true; yet we are not to conſider the lofty regions in the Alps and Pyrenees as poſſeſſing theſe ſalubrious qualities; for it is only upon moderate heights, and in hilly rather than mountainous countries, that we ſo frequently meet with people of an unuſual age. Perſons who are conſtantly travelling, are likewiſe ſaid to enjoy a long and healthful life; and Lord Bacon further includes, in the liſt of long livers, ſuch as are of a melancholy temperament. It is a queſtionable point, whether the great age of many Turks is to be aſcribed to the ſerenity of their climate, their daily uſe of the bath, or their uncommon temperance in eating and drinking. For, as to their copious uſe of opium, which is conſidered by them almoſt as neceſſary as food, we have already ſhown the noxious tendency of ſuch practice; opium generating, in a remarkable degree, a diſpoſition of the fluids, in many reſpects reſembling

that of hypochondriasis. There is scarcely an instance of any person, that has attained to uncommon longevity, who has not been particular in his diet and manner of living. But in this respect we cannot hope to derive advantage from excessive solicitude :—for, as when in want of sleep, the more we think of it, the more it shuns us; so those who are most anxious for longevity, are the least likely to attain it. Age is a gift, which Heaven frequently bestows upon mortals, when they are asleep, or in other words, when they are scarcely sensible of it!

On the Symptoms of actual Dissolution.

THAT many unfortunate individuals are consigned to the grave, before they are actually dead, is a truth too well attested to require demonstration. If this were not, or never had been the case, it could not have excited that degree of attention on the Continent, and particularly in Germany, which of late years has been bestowed on this important subject. The most respectable Physicians have proved by incontrovertible facts, that sick persons have often been hastily buried, or to speak more properly, smothered in their coffins, either from accidental mistake, or from the most detestable motives. But, as many false and scandalous reports are generally circulated, in addition to those founded on truth, we need not wonder, that this business has

not been conducted, hitherto, with that degree of calm and patient attention, to which it is justly entitled. Houses for the reception of persons apparently dead have been, at length, erected in various parts of Germany, in Berlin, Jena, Coburg, &c. This idea, at the first view of it, may to some appear whimsical; but those who know the extent of the power of vitality, and the almost infinite modifications of which that power is susceptible, will not ridicule a proposal, which originated in motives of prudence and humanity. Into these houses every inhabitant of the town, or district, has a right to send the body of a deceased person, on paying a trifling sum per night, towards the expenses of the institution. Here the body is deposited on a couch, lightly covered, and provided with a string fastened to the hand, which pulls a bell on the top of the house. A watchman is appointed to receive and register the bodies brought into the house, and to give the alarm, if necessary. This, to say the least of it, is no small convenience to families in a large city, crowded into narrow apartments, with a number of children, who must necessarily suffer from the pestiferous exhalations of dead bodies. But this is not the principal advantage attending such establishments: it is unquestionably a great satisfaction to the relatives of the deceased, to be assured that every means have been used to preserve from the most dreadful of all deaths, a friend whose memory they revere.

The cafes, in which death can be clearly afcertained, are nearly the following:

1. When putrefaction has actually taken place over the whole animal frame; as inftances are common, in which a partial mortification of an arm or a leg is by no means mortal.

2. In the nervous apoplexy of the aged; as fuch perfons generally die in confequence of flowly wafting diforders, various fpecies of palfy, &c.

3. If the patient expires after a long ftanding confumption, hectic fever, or ulcerations of the breaft and lungs, diseafes now very common.

4. If any of the larger blood-veffels, or other parts effential to life, have received external injury, by violent blows, bruifes, or cuts, attended with great lofs of blood, which could not be ftopped by artificial means. If we are unable to fupply the lofs of this vital fluid, and to reftore the organization of the parts thus deftroyed; particularly if the brain, the lungs, the heart, the ftomach, or any of the inteftines, have fuffered from a fevere wound, a fpeedy diffolution may be confidered as inevitable.

5. After chronic diforders of the inteftines, obftructions of the abdominal veffels, and dropfy thence arifing—or if an incurable weakneſs in the breaft has occafioned the organic deftruction, or offification of the pectoral veffels, there is little profpect of the recovery of fuch a perfon; as theſe complaints of aſthmatic ſufferers, in general, are not in a

juſt proportion to the whole ſtate of the body; for inſtance, if their appetite and digeſtion have been unimpaired previous to their diſeaſe, or if their muſcular ſtrength has not ſuffered from the like affections.

6. In perſons of tender and debilitated nerves, who have been long ſubject to ſpaſms or epileptic fits, particularly if they die in child-bed, in conſequence of violent hemorrhages, or after repeated and oppreſſive agitations of mind;—in ſuch caſes there is no hope left, as it is too late to think of changing or improving the conſtitution of the nervous ſyſtem. Laſtly,

7. If a perſon gradually waſtes away in a malignant nervous or putrid fever, or after long faſting from want of food. In theſe inſtances it is not in the power of the medical art to reſtore the ſhrivelled veſſels to their proper tenſion and energy; conſequently all our efforts to reanimate the body will be unavailing.

There remains now to be ſtated alſo, in what caſes and ſituations the ſymptoms of apparent death are leſs certain, ſo that ſome hope of recovery is ſtill left to the diſconſolate friend and relative. Theſe are principally the following: after faintings, ſudden loſs of blood from diſeaſed inteſtines,—in certain caſes of repelled morbid matter, for inſtance, in the ſmall-pox, meaſles, poiſons, and the like, which frequently produce a ſpurious kind of apoplexy;—after hyſteric and hypochondriac ſpaſms and colics of a tranſitory kind, which have not too often recurred; af-

ter mental anxiety, perturbation, terror, and other oppreſſive paſſions, where every thing depends on a ſpeedy removal of the cauſes. To this liſt we may likewiſe add the caſes of drowned, hanged, and otherwiſe ſuffocated perſons, or thoſe who appear to be dead, in conſequence of a fall from high ſcaffoldings, without any external injury. In ſuch accidents, an internal preſſure or ſtoppage of the vital functions, as breathing, and circulation of the blood, often produces a ſtate of apparent death.—Even the ſuppreſſed pulſe in the arteries, imperceptible reſpiration, the coldneſs and rigidity of the limbs, the want of contractibility in the pupil of the eye, the involuntary loſs of excrementitious ſubſtances,—all theſe ſymptoms of approaching diſſolution ſhould not diſcourage us from trying the proper means of recovering the patient's life. In children and young perſons, in particular, we muſt not too haſtily decide, whether they be abſolutely dead or not;—*teething* is frequently attended with diverſified convulſive ſymptoms, and the *tape-worm* is capable of producing the moſt alarming effects, which the inexperienced by-ſtanders may unwarily aſcribe to very different cauſes. Hence every poſſible degree of precaution is requiſite in managing the bodies of infants apparently dead, and above all things not to remove them from the warm temperature of the ſick-room, before the laſt lingering ſpark of life is extinguiſhed. Indeed, it muſt ſtrike even ſuperficial obſervers, that the haſty removal of a body from a warm to a colder temperature

is highly improper and dangerous. And here the excellent rules, publiſhed by the Royal Humane Society of London, for the recovery of perſons apparently dead, cannot be recommended in too ſtrong terms; although ſome of the more violent methods detailed in their plan, ſuch as inflation of the bowels with the *fumes* of *tobacco*, *clyſters* prepared of this herb, violent *agitation*, and too *early* and *indiſcriminate* application of the *electric ſhock*, might well bear a few modifications and improvements.

Summary of Dietetics.

THE knowlede of thoſe objects which relate to the preſervation of the human body, in its natural ſtate, may be called the *Doctrine of Health*. Life and Health are, therefore, the proper objects of this doctrine; as the ſecond department of Medicine ſolely relates to the preternatural ſtates of man, viz. Diſeaſe and Death, and forms that branch of profeſſional ſtudy, which we call '*Pathology*.'

The compaſs of the former ſcience, or an inveſtigation of the objects included in the doctrine of health, muſt be very extenſive. It furniſhes us with rules and cautions as to every thing we ought to do, or to avoid, in order to remain healthy. This uſeful ſcience is properly denominated DIETETICS, or a *ſyſtematic view of all objects relative to health in general, and to food and drink in particular*.

The following Chapters will, therefore, be exclusively devoted to Dietetics. My principal object will be, to lay a solid foundation for that important science, by investigating and combating the chief prejudices, which have hitherto retarded the progress of this branch of knowledge. Hence, a *System of Dietetics* must not only contain all those rules, which are requisite to guide us in the preservation of health, together with such as relate to the choice of a proper mode of life, but should likewise inform us with regard to the beneficial or hurtful influence, which *external objects* produce on the health and life of man, and teach us the just application, or practical use, of these objects.

Dietetics include the whole of what the Ancients understood by the singular name of the Six Non-naturals; namely, *Air*, *Aliment*, *Exercise and Rest*, *the Passions and Affections of the Mind*, *Wakefulness and Sleep*, and *Repletion and Evacuation*. Although these general heads do not comprise, strictly speaking, every thing that relates to the different functions of the human body; yet they contain all such conditions of life, as are absolutely necessary, and the greatest part of those circumstances, which are connected with the health and well-being of the individual. In each of these particulars we are liable to commit errors, either by intemperate use, or an improper application. I propose, therefore, to lay down a System of Rules, by which we may be assisted to choose, according to particular circumstances, the best and most ra-

tional means of insuring health, and of avoiding whatever may have a contrary tendency.

Our mode of life is no longer that natural and simple one, which prevailed in the primitive ages of mankind: in the present state of society such habits are scarcely conceivable. Man in a state of nature had little occasion to attend to his health; he wanted no rules for the preservation of it; for, as the seeds of diseases are rarely scattered in such a state, instinct would be to him in most cases a sufficient guide. It now seems to be impossible to return to that primeval state, without returning, at the same time, from our present degree of mental improvement to that of pristine barbarity. We have, to all appearance, purchased our improved state of mental culture, by sacrificing to it a considerable share of our bodily welfare;—happy, however, we may still consider ourselves, if we have actually gained in moral and intellectual improvement.

Innumerable are the causes, which have conspired to render the *true* knowledge of the means conducive to health, difficult in the acquisition, and uncertain in its application. The chief of these are probably the following, which include most of the subordinate particulars:—the present very artificial method of living; the prodigious number of the employments of mankind; the different modes of dwelling and dressing; the endless variety of articles used as food and drink; the great diversity of national customs and manners; and the difference of climate and situation:—

all these circumstances have greater or less influence, conjointly or separately, not only on the passions, inclinations, and instinctive desires of individuals, but also on the general state of the health and physical welfare of a people. By the present mode of living we are exposed to diseases wholly unknown in the first ages of the world, and we suffer from a variety of complaints, originating either in artificial habits, or the constraint under which we labour, in consequence of blindly complying with the caprices of custom, or fashion, without perhaps apprehending any ill consequences from such pernicious practices.

Many ingenious writers have lately endeavoured to point out the disadvantages arising from causes apparently trivial. Thus the fashion of using paint, hair-powder, and pomatum; of wearing ill-shaped shoes, laced stays, &c. have deservedly incurred severe ridicule and pointed censure. The custom of applying lead to earthen vessels has not escaped their attention: the danger, however, resulting from the use of that substance, has been greatly exaggerated. Writers, with the best intentions, have sometimes, from an excess of zeal, descanted on the worst side of the question only, by attributing to certain things many dangerous qualities, which in fact are owing to a great diversity of circumstances.

This partial method of inquiring into the sources of the evil, is, generally speaking, a serious error; as it not only leads to false conclusions, but also draws our attention from other pressing injuries, to which, in a more

diſpaſſionate ſtate of mind, our care might be directed.

Many, and perhaps the greater number, of dietetic writers have fallen into another error of an equally bad tendency. They judge of every thing, according to the agreeable or diſagreeable effect it produces on their own palates and conſtitutions, and hence recommend their favourite articles to others; although what is ſalutary in particular caſes, may have a pernicious tendency, if preſcribed indiſcriminately.

The multiplicity of our wants, all deſerving attention in a Dietetic Syſtem, has alſo conſiderably multiplied the rules of health. Of all living beings, indeed, none require ſuch rules more than thoſe, who ſervilely ſubmit to the arbitrary mandates of luxury and faſhion.

Many are the open and ſecret enemies to the health and proſperity of man. Even the moſt healthy, and thoſe who rigidly adhere to the rules of Diet and Regimen, cannot altogether evade their attacks. Hence we ſhould make it our ſtudy, to acquaint ourſelves minutely with every thing, ſo as to be enabled to judge of its good or bad qualities. Whatever we are obliged to have more immediately about and around us, ranks in this claſs: the arrangement of our dwelling places, beds, clothes, furniture, &c. in the choice of which we are leſs accuſtomed to conſult what nature requires, or to contrive what may be moſt likely to promote the welfare of the body, than to follow faſhion, vanity, or our own habits.

Some of our organs of ſenſe, and other faculties of the body, muſt unavoidably ſuffer from inattention to a proper mode of living in general. From the great exertions, to which we often ſubject them (the eyes, for inſtance, in reading) they are liable to a variety of accidents, and frequently become debilitated and impaired. It appears, therefore, perfectly conſiſtent with the plan of this work, to treat of the management of the eyes, teeth, and other individual parts of the body.

In a complete Syſtem of Rules for preſerving the health of man, attention muſt be paid to the ſeparate wants of individual conſtitutions; provided they be not too minute and trivial. Such a ſyſtem muſt contain more than what relates to the firſt and moſt ſimple rules of living;—its precepts muſt not apply to the healthy alone, or thoſe whoſe life is regulated by the ſimplicity of nature,—it ſhould alſo lay down inſtructions, how, in all contingent circumſtances, we may be ſecured from danger and bodily injuries. It is not, however, propoſed to treat of diſeaſes after they have taken place, if the removal of them requires any thing more than a ſtrict adherence to temperance, and the other rules laid down in theſe Lectures.—But to prevent any miſapplication of thoſe rules which are eſtabliſhed by the accumulated obſervations of ages, it may not be improper to introduce here ſome previous *general remarks*, relative to the individual uſe and advantage to be derived from a connected view of *Dietetics*.

It may be laid down as a preliminary obſervation, that the rules contained in this work are not to be conſidered as ſtrictly applicable, in every inſtance, to the particular ſituation of any individual, or as eſſentially neceſſary to the preſervation of his health.—It is not ſo much the healthy, as the valetudinary and infirm, who ſtand in need of minute precepts for their conduct; and even the latter ought not to engage too ſolicitouſly in their compliance with them; ſince it is only a very limited number that require ſuch accurate attention.

A vigorous and perſevering method of inuring ourſelves to the unavoidable difficulties and diverſified accidents of life, is of greater importance to the preſervation of health, than any dietetical rules whatever. Man is capable of undergoing all the viciſſitudes and inconveniences of air, weather, and climate; he can digeſt any articles of food, if his ſtomach has not been wantonly indulged; he can ſuſtain the ſevereſt bodily exerciſe and labour, without paying too minute attention to time or regularity, when his employment or duty renders exertion neceſſary. But he who from his infancy has been treated with extreme tenderneſs, or who, after having been previouſly accuſtomed to a hardy mode of life, is ſeized with the whim of beſtowing too much care on his health, will ſuffer from the moſt trivial hardſhips, and catch cold at every change of the air; every heavy or high-ſeaſoned diſh will be oppreſſive, and the ſmalleſt deviation from the rules of temperance indiſ-

poſe him. Yet, by the ſame rules, every healthy perſon will learn, that the grand ſecret for preſerving himſelf in that ſtate, conſiſts principally in the art of moderating his deſires and enjoyments. We may thus arrive at the knowledge of ſuch things, as are *generally* conducive to the welfare of the body; and more than this ought not to be expected. Rules of health, *univerſally* applicable to the ſtate of every individual, are not diſcoverable in nature; nor can they be derived from any experimental knowledge we poſſeſs of corporeal objects.—The beſt general precept is, that every one ſtudy himſelf, and his own particular conſtitution; that he chooſe and regulate his mode of life accordingly; and that he make his own experience his guide in whatever he finds moſt ſuitable and convenient.

CHAP. II.

Of AIR *and* WEATHER; *their influence on the Human Body; the means of improving the former, and diminiſhing the pernicious effects of the latter.*

Of Air in general.

AS ſoon as an infant enters into the world, the air of the atmoſphere penetrates into his lungs, filled up till then with aqueous mucus, and renders them fit for the circulation of the blood, which immediately commences. From that moment the alternate extenſion and contraction of the breaſt and lungs, the inſpiration and expiration of the air, or in other words, the function of *reſpiration*, becomes indiſpenſably neceſſary to the preſervation of animal life. While the child remained within its mother, it required no external air. As ſoon, however, as it has drawn breath, as ſoon as the lungs are opened, the act of reſpiration begins, is conſtantly renewed through life, and can never abſolutely ceaſe, but with death. As, therefore, air is the principal medium by which animal life is ſupported, it becomes highly important to acquire correct ideas of this refined ſubſtance, that pervades all the parts of animate and inanimate matter, and is ſo eſſential to man, for the preſervation of both his life and health.

Air is that colourleſs, tranſparent, compreſſible, heavy, and elaſtic fluid, which every

where ſurrounds our globe, and which generally receives the name of *Atmoſphere*.* This ambient matter, in its common ſtate, is combined with a great variety of foreign ingredients. It contains *water* in a ſtate of ſolution; by means of water it combines with ſalts; in many places we find it impregnated with *ſulphur*, with putrid exhalations, and the like; nay, frequently we even meet with earthy particles floating in this element.—When all foreign ingredients are ſeparated from it, the ſubtle aërial body ſtill remains of

* "Our bodies are equally preſſed upon by the incumbent atmoſphere, and the weight they ſuſtain is equal to a cylinder of the *air*, whoſe baſe is equal to the ſuperficies of our bodies.—Every foot ſquare of this ſuperficies ſuſtains a quantity of *air* equal to 2660lb.; ſo that if the ſuperficies of a man's body was to contain 15 ſquare feet, which is pretty near the truth, he would ſuſtain a weight equal to 39,900lb. The difference of the weight of the air, which our bodies ſuſtain at one time more than at another, is alſo very great; that between the greateſt and the leaſt preſſure of air upon our bodies has been proved to be equal to 3902lb. Hence it is ſo far from being a wonder, that we ſometimes ſuffer in our health by a change of weather, that it is the greateſt miracle we do not always do ſo. For when we conſider, that our bodies are ſometimes preſſed upon by near a ton and a half weight more than at another, and that this variation is often very ſudden, it is ſurpriſing that every ſuch change ſhould not entirely break the frame of our bodies to pieces. And the veſſels of our bodies, being ſo much ſtrained by an increaſed preſſure, would ſtagnate the blood up to the very heart, and the circulation would quite ceaſe, if Nature had not wiſely contrived, that when the reſiſtance to the circulating blood is greateſt, the *impetus*, by which the heart contracts, ſhould be ſo too. For upon increaſe of the weight of the air, the lungs will be more forcibly expanded, and thereby the blood more intimately broken and divided; ſo that it becomes fitter for the more fluid ſecretions, ſuch as that of the (ſuppoſed) nervous fluid, by which the heart will be more ſtrongly contracted, and the blood's motion towards the ſurface of the body being obſtructed, it will paſs in greater quantity to the brain, where the preſſure of the air is taken off by the *cranium*, upon which account alſo more ſpirits will be ſeparated, and thus the heart too more enabled to carry on the circulation through all paſſable canals, while ſome others towards the ſurface are obſtructed."

Quincy's New Medic. Dict.—Article, *Air*.

a compound nature, and is by no means a simple elementary substance, as was formerly believed.

According to the late discoveries in chemistry, the aërial basis of the atmosphere consists of *three* different species of air, namely, of pure, respirable, or dephlogisticated air; of azotic, or phlogisticated air; and of fixed, aërial, or carbonic acid air.—The proportion of the first, namely, pure or vital air, consists, according to the French Chemists, who have given it the name of *Oxygen*, of 27 or 28 in the hundred parts; the second, *viz.* the *Azote* of the French, of 72 or 73 in the hundred; and the third, namely, the *Carbonic acid air*, of about one part only in the hundred.*

* The accurate experiments made by the late SCHEELE and BERGMAN, in Sweden, do not much differ from those of the French Chemists, with respect to these proportions. For, according to Scheele and Bergman, the common proportion of vital air, or oxygen, in the atmosphere, is about one fourth; that of azote about five eighths; and that of carbonic acid nearly one sixteenth; the last of which, by the French, is computed only at one hundredth part, that is, five parts in the hundred less than the Swedish philosophers maintain.

The following is a concise history of *Oxygen*:—In August, 1774, Dr. PRIESTLEY, and much about the same time Mr. SCHEELE, in Sweden, discovered this respirable part of atmospheric air, or rather they exhibited it, for the first time, in a pure state. This elastic substance was first called *dephlogisticated air*, agreeably to the hypothesis of *phlogiston*;—afterwards it went under different names, as pure air, fire-air, vital air, until the late hypothesis of *Oxygen*, or the acidifying principle, has procured it the name of *oxygen gas*.—But still more diversified than these names, are the theories which have been proposed on the nature and properties of this species of air, during the last twenty years. With *Priestley*, it is the purest air freed of all phlogiston; with *Scheele*, it is the nitrous acid deprived of its water; according to *Bergman*, it is one of the unknown constituents of nitrous acid; with *Fontana*, it is the dephlogisticated nitrous acid; *Forster* considers it as air united with fire; Mr. *Watt*, of Birmingham, thinks to find in it elementary fire combined with hydrogen or inflammable gas; *Achard* and *Gren* formerly believed it to be water combined with much Caloric, or the principle of heat; but *Gren*

Oxygen is much better adapted to the respiration of animals, than common atmospheric air. If two animals be inclosed in vessels, one of which contains pure oxygen, and the other common atmospheric air, in proportions equal to the size of the animals, the former in the oxygen will be found to live from six to seven times longer, than the latter in common air. It is properly this oxygen which we inspire, and which is the grand support of animal life. Persons apparently dead, or in a state of suffocation, have been instantly restored to life by its influence, and from the corresponding testimony of several respectable physicians, it appears to have been employed with advantage in many obstinate diseases.—The celebrated INGENHOUZ therefore gave it the name of *vital air*. It promotes combustion in a very high degree. A candle will burn in it from six to seven times longer than in common air, with a much greater degree of heat, and a more brilliant flame. Bodies in a glowing state, are immediately inflamed, when put into oxygen gas; and even metals, which are not very fusible, are melted in it, and converted into oxyds, or calces, with the greatest facility.

latterly maintained, in his System of Chemistry, that it is the unknown basis of vital air combined with Caloric;—if we believe *Westrumb*, it is elementary air in a state of combination with Caloric, but the basis of the former cannot be discovered; according to *Fourcroy*, it is an unknown elementary matter united with inflammable air; in the opinion of *Lavoisier*, it contains the acidifying principle, OXYGEN, and the principle of Heat, CALORIC; Mr. *Cavendish* maintains that it is dephlogisticated water; and according to *De la Metherie*, it is an unknown substance combined with water and fire; &c. &c.

Azote, by others called phlogiſticated, mephitic, corrupted, or ſuffocative air, is abſolutely irreſpirable, and not miſcible with water. It ariſes from the change which atmoſpherical air undergoes in every proceſs of combuſtion, putrefaction, and reſpiration, whether produced by nature or art.

Azote enters into no combination with water, but may be rendered leſs hurtful by ſhaking it with that fluid: this accounts in ſome meaſure for the ſalubrity of the ſea-air. It greatly promotes the growth of plants, and readily accumulates in apartments filled with people, or containing articles freſh-painted with oil-colours, or in which ſtrongly fragrant flowers are kept, without having any acceſs of freſh air. We ſhould be extremely cautious in entering ſuch places; as diſeaſes of the breaſt and lungs are too frequently the conſequences of neglect, obſtinacy, or ignorance.

The *Carbonic acid* of the French is the *fixed air* of Dr. BLACK, and the *Aërial acid* of BERGMAN. This ſpecies of air is miſcible with water; but in its pure ſtate equally irreſpirable as the Azote. It derives its origin, partly from the vinous fermentation of vegetables, and ſome animal ſubſtances, and partly from the mild alkalies, ſalts and earths combined with acids. Much of this air is found in mines, where it frequently diſtreſſes the workmen by its ſuffocating qualities. It is alſo obſerved in moſt mineral waters, where a ſtratum of it ſometimes ſwims upon the ſurface of the well. Theſe waters, as well as fermented liquors

which contain a conſiderable portion of fixed air, receive from it the well known pungency ſo agreeable to the palate. Hence flat and ſpoiled beer, or wine, may be corrected and reſtored to its former briſkneſs, by the addition of fixed air evolved from chalk and vitriolic acid, or by mixing it with new beer or wine in a ſtate of fermentation.

This ſpecies of air quickly extinguiſhes fire, and ſtrongly attracts the fumes ariſing from candles. As it is unfit for reſpiration, animals cannot live in it. The warm-blooded animals die in it much ſooner than any other; thoſe of an amphibious kind ſomewhat later; inſects are not irrecoverably killed by it; irritability is ſuddenly deſtroyed, and the heart of an animal ſo deprived of life, though ſtill warm, no longer exhibits any ſigns of motion.

There is another ſpecies of mephitic air, which is not miſcible with water, which burns with a flame, and if mixed either with atmoſpheric air, or oxygen gas, inſtantly catches fire, and is exploded: this has received the name of inflammable air,* and deſerves to be

* This air may be obtained in a great variety of ways, from all ſubſtances liable to inflammation, or containing combuſtible matter, by means of heat, fermentation, acids, and the like; nay, even from metals, by directing the ſteam of boiling water through a red-hot metallic tube.—It is the ſpontaneous production of nature, throughout her *three* kingdoms. In mines, in ſubterraneous caverns, and particularly in coal-pits, it is known by the name of *choak-damp*. It is copiouſly generated in the inteſtines of living animals, and is frequently met with in common ſewers, burying grounds, and places where dead animal bodies are expoſed to putrefaction.

The white Dittany, (*Dictamnus albus*, Lin.) when in flower, generates ſo great a quantity of inflammable air, that the atmoſphere around it has been obſerved to catch fire. In ſwamps, pools, and

mentioned here, although it cannot be conſidered as a conſtituent part of the atmoſphere.

With reſpect to the *ſpecific gravity* of the different airs before enumerated, it is in this place only neceſſary to obſerve, that the heavieſt is the fixed air, or carbonic acid gas; next to this comes the azote and oxygen, both of which are heavier than the common air of the atmoſphere; and laſtly, hydrogen, or inflammable gas, which is the lighteſt of all; for it is even lighter than the pureſt atmoſpheric air.

When the atmoſphere is too much impregnated with any of the mephitic gaſes, its influence on the human body is extremely noxious. Thus we ſee many of the workmen in lead-mines dying in the prime of life, of an obſtinate and incurable colic, which is attended with the moſt painful obſtructions.—Painters, glaziers, potters, and manufacturers of glazed earthen ware, are from a ſimilar cauſe expoſed to the ſame dreadful diſeaſe; being obliged to make uſe of great quantities of lead* in different forms.

other ſtagnant waters, where a number of plants, particularly ſage, calamus, and the like, are putrifying, we find a ſpecies of inflammable gas, which is known by the name of *marſh-air*, or more commonly, the *ignis fatuus*, or *Will-o'the-Wiſp*.

* Whether this inſidious and deleterious metal be communicated by inhaling its vapours through the lungs, or by abſorbing them through the pores of the ſkin, the effects of it are equally dangerous and fatal. The internal uſe of ſulphur, and both the internal and external uſe of vegetable oils, or animal fats, are the only antidotes hitherto diſcovered againſt this virulent bane of the manufacturer and the artiſt.

Moſt trades and occupations are ſubject to peculiar diſeaſes; in ſome the materials of the manufacture have a pernicious influence on the body, and in others the nature of the employment is hurtful, either from requiring a ſedentary life, a reclined, ſtooping, or ſtand-

It is almoſt unneceſſary to mention the frequent and ſudden deaths that have taken place from the exploſion of inflammable air in mines, or from the opening of pits, deep wells, and other confined places. Neither is any thing ſo much calculated to corrupt and poiſon the air, to fill it with noxious vapours, and to generate diſeaſes, as the *burying-grounds* eſtabliſhed within the walls of populous cities, where human bodies are depoſited, as if with an apparent deſign to produce an atmoſphere, which is particularly fatal to the tender lungs of children, and in no ſmall degree hurtful to adults.

As the maſs of atmoſpheric air is inceſſantly corrupted by the reſpiration of men and animals, by the burning of ſo many natural and artificial fires, by the diſſolution and putrefaction of innumerable ſubſtances, and by various other phlogiſtic or deſoxygenating proceſſes, it would at length become altogether incompetent for its original deſignation, if Nature had not provided effectual means for its improvement and reſtoration. Among the moſt powerful of theſe, we may place the growth and vegetation of plants.—For this very important diſcovery we are indebted to Dr. PRIESTLEY, who was ſo fortunate as to hit upon it, after he had long employed him-

ing poſture, or from being performed in a confined air, or at a great fire, and the like. Hence *millers*, *hair-dreſſers*, and *ſtone-maſons*, frequently die of a conſumption of the lungs, in conſequence of the minute particles of duſt which they are continually obliged to inhale.—Manufacturers of wool, and particularly hatters, are much troubled with obſtinate cutaneous diſeaſes; and all thoſe whoſe buſineſs is attended with greaſe and duſt, ſuffer more or leſs from the conſequences of uncleanneſs.

ſelf in fruitleſs attempts, to improve and reſtore corrupted air, by artificial means. He found that air, rendered mortal by the breathing of animals which had expired in it, was again ſo completely reſtored by the vegetation of plants, that, after the lapſe of ſome days, an animal could live in it with equal eaſe, and for the ſame length of time, as in a ſimilar quantity of common atmoſpheric air.

Theſe experiments, indeed, did not ſucceed with ſome Naturaliſts; and Prieſtly himſelf, upon repeating them with different plants, found the reſults rather varying and doubtful: but Dr. INGENHOUZ removed the greater part of theſe difficulties, by his book, "Experiments upon Vegetables, 8vo. London, 1779." This ingenious philoſopher remarked, 1ſt, That moſt plants have the property of correcting bad air within a few hours, when they are expoſed to the *light of the ſun*; but that, on the contrary, *during the night*, or in the *ſhade*, they corrupt the common air of the atmoſphere;—2d, That plants, from their own ſubſtance, afford a very pure dephlogiſticated air, or Oxygen, when expoſed to the rays of the ſun; but a very impure air or Azote at night, or in the ſhade;—3d, That not all the parts of plants, but only the green ſtalks of leaves, particularly through the ſides oppoſite to the ſoil, produce this beneficial effect;—4th, That the diſengagement of pure or vital air does not commence until the ſun has been ſome time above the horizon; that it ceaſes altogether with the termination of day-light; and that the diſadvantage ariſing

from the impure exhalation of plants, during the night, is far exceeded by the great advantage they afford during the day; insomuch, that the impure air, generated by a plant during the whole night, scarcely amounts to a hundredth part of the pure vital air or Oxygen, exhaled from the same plant in two hours of a serene day.—Thus we discover a most striking phenomenon in the œconomy of nature; since the vegetation of plants continually counteracts the noxious effects of respiration, combustion, and putrefaction.* In this manner, the atmosphere is constantly preserved in that necessary state of purity and temperature, which is the most salutary both to animals and vegetables.

We have learnt the effects produced on the human body by the atmosphere and the changes of the weather, partly from observations made by ourselves and others, and partly from their influence on inanimate matter, by which we can judge in some measure of its analogous effects on the human frame; but we should not thence conclude that our knowledge, in this respect, is either complete or infallible. Observations may frequently deceive us, since the

* It should be recollected here, that when the growth of plants is interrupted by the cold of winter, so that they no longer generate a beneficial air to purify the atmosphere, Nature has ordained it, that this very cold of the winter itself contains the most effectual virtues to stop the progress of putrefaction. We further find, that in the most unwholesome, and particularly in marshy countries, those very plants appear to be very profusely distributed, which most eminently possess the property of purifying the air. And as the pure air, or oxygen, is of greater specific gravity than the common air of the atmosphere, it is perfectly consistent with the operations of nature, that the oxygen should settle towards the lower side of the leaves of plants.

human body, beſides the weather, is inceſſantly expoſed to the effects of other external agents, which may eaſily elude our attention. Further, the atmoſphere ſurrounding us, beſides the properties cognizable by our ſenſes, or diſcoverable by the aſſiſtance of particular inſtruments, may alſo be impregnated with ſubſtances which have hitherto eſcaped our reſearches, and which nevertheleſs may have the power to effect important changes. Laſtly, we ought not to conſider the arguments deduced from analogy as ſtrictly concluſive; we ſhould remember, that the effects of external objects on the living animal fibre are, in many inſtances, totally different from thoſe which they produce on lifeleſs or inanimate bodies.

Recommending theſe general remarks to the conſideration of the reader, I proceed to conſider thoſe particular and poſitive effects, which the different ſtates of the atmoſphere produce on our frame, and in what manner they influence our health.

Warm air relaxes the ſolid parts of the body, and occaſions a ſtronger circulation of the fluids. *Heat* is chiefly oppreſſive to the Nerves; hence the tender and infirm ſuffer ſeverely in hot weather; hence ariſe hyſteric and hypochondriac complaints, convulſions, and diarrhœas. *Cold* renders bodies more compact, particularly the ſolid parts of the animal ſtructure, ſuch as the muſcles, nerves, bones, &c. They become more elaſtic in winter; the appetite for food is ſtronger, and digeſtion eaſier and quicker. On the contrary, the reſiſtance

of the fluid parts becomes so great, that even the increased powers of the solids cannot overcome it, if the cold be too violent. In winter the blood is much disposed to inflammations; hence stitches in the side, inflammatory sore throats, rheumatisms, &c. In persons who take little exercise, the fluids are apt to stagnate, and the solids to chill during the winter;—upon the whole, however, the effects of cold weather may be rendered less hurtful, and even salutary to the body, if proper exercise be not neglected.

Damp or *moist air* suddenly relaxes and debilitates; it occasions a slowness in the circulation of the fluids, which gives rise to obstructions, and impedes both the circulation of the blood and the secretion of humours, by checking insensible perspiration. If the moisture of the air increases, we experience an unaccountable torpor and *cnnui;* with the loss of energy we lose our gaiety, and the mind is depressed with the body. Damp places and districts are always unwholesome, but more particularly so in cold weather. Moisture, by diminishing perspiration, produces disorders of the throat, the breast, and the abdomen. But the most dangerous and fatal effects on the human body have been observed to arise from moist air accompanied with hot weather; for, when moisture has impaired our energy, heat increases the evil in a great degree, by opening the pores through which the moisture penetr[illegible] nto the body, and predisposing every part of it to putrefaction and dissolution. This accounts for the

great mortality prevalent during the hot ſeaſon at Batavia, and ſome of the Weſt India iſlands.

Dry and *cool air*, from poſſeſſing a due degree of elaſticity, promotes in an extraordinary degree the ſerenity and alertneſs of mind and body; hence it is found uncommonly ſalubrious to hypochondriacs. But a dry and very cold air generates inflammatory diſeaſes; becauſe it inſpiſſates the blood. Dry and hot air affects us like heat, and enervates the body. But a dry air, which is not too warm, is both agreeable and healthy.

Great and *ſudden changes* from a warm to a cold, or from a light to a heavy air, are highly injurious to valetudinarians, and even to the healthy. Soldiers in camp, and, ſometimes, travellers, feel very ſeverely the bad effects of cold and moiſt night air, after long marches and journeys. Weakly and infirm perſons have frequently ominous ſenſations, previous to any remarkable change of the air.

A moderately heavy and elaſtic air is the moſt agreeable and ſalutary to the human body; hence nature has not aſſigned us our conſtant reſidence on the ſummits of mountains. Yet a light and rarefied air, ſuch as is felt on the higheſt mountains, is not ſo unfit for reſpiration, nor does it manifeſt ſo noxious an influence on the human body, as was formerly believed. The lateſt travellers aſſure us of the contrary, and ſpeak in deciſive terms of the ſalutary effects of the air, during a ſhort ſtay in thoſe elevated regions.

Among the different WINDS—which are nothing elſe but ſtrong commotions of the air—the long continued *North wind* is comparatively the moſt wholeſome; it purifies the atmoſphere of noxious vapours, renders the air ſerene and dry, and thus imparts to the human body elaſticity, vigour, activity, and a lively colour. It is, however, troubleſome to perſons of delicate habits, and occaſions in them coughs, inflammation of the throat, pains in the ſide, obſtructions, and febrile diſeaſes. The *South wind* weakens and relaxes the body, and is very apt to produce catarrhal affections. The *Morning wind* is very drying; but *Evening winds* are cool and moiſt, being frequently accompanied with rain and changeable weather. All theſe winds differ materially in their qualities, from local circumſtances, and accordingly as they blow over a Continent, over the Ocean, or over high mountains and icy regions, from which they carry along with them more or leſs of cold and humid particles. But upon the whole, too dry weather is always more healthy, than that which is too moiſt.

Of the four SEASONS of the year, the *Autumn* is the moſt unhealthy; becauſe then the particles of perſpiration not only remain on the body, but are in a ſtate inclining to putrefaction. This diſadvantage, however, may be eaſily obviated by guarding ourſelves with proper dreſs and chooſing a ſuitable diet. Too light a dreſs, and too thin ſtockings, are not adviſable at this ſeaſon. The *Spring ſeaſon* is, in general, the moſt healthy. Spring,

and the beginning of *Summer*, are moſt ſalutary to children and young perſons; while the Summer, and the beginning of *Autumn*, agree beſt with the aged. The latter end of Autumn, and the beginning of *Winter*, are commonly the moſt healthy ſeaſons to perſons of a middle age.

It has been remarked by medical men, that certain diſeaſes appear and diſappear according to the different ſeaſons. Thus, putrid and bilious diſorders prevail in Summer; inflammatory diſeaſes in Winter, and the catarrhal, mucous, and gaſtric or ſtomachic affections, in Spring and Autumn. It has been further obſerved, that in Spring the blood uſually circulates more freely; hence probably aroſe the ancient practice of blood-letting, and taking laxatives at certain regular periods; both of which I have already pointed out, in the preceding Chapter, as dangerous in their tendency, and always hurtful to the healthy.

As the vegetable kingdom is renewed in Spring, and as vegetation, in general, is moſt lively in that ſeaſon, there can be little doubt, that the pure vital air is then moſt copiouſly evolved, by means of the ſolar light and heat. Hence it follows, that the vernal air is more wholeſome than that of Autumn, which is ſaturated with corrupted and putrifying particles. Still the cold of Autumn, and the frequent winds then prevalent, prove extremely efficacious in counteracting the baneful effects of corruption and putrefaction.

If the temperature of the air correſpond with the natural conſtitution of the ſeaſon, we may expect what is called a healthy year, and that the prevalent diſeaſes will be of a mild nature; but if the weather does not agree with the general laws of the ſeaſon; if, for inſtance, the Winter prove warm, or at leaſt moderate, or the Spring cold and ſevere, with ſudden alternations of heat, we may expect to find the year pretty generally marked with ſerious and obſtinate diſeaſes.

The temperature of the air depends not a little on the natural ſituation of the country, whether it lie high or low; whether its mountains oppoſe or give a free paſſage to the winds; whether it contains flowing or ſtagnant waters or moraſſes, and whether it is open or covered with woods.—Country air, upon the whole, is always purer than that of towns, narrow ſtreets, and crowded buildings.

All *ſtrongly-ſcented bodies* are more or leſs pernicious; as well thoſe of a diſagreeable ſmell, as the greater number of fragrant perfumes. The latter, if too ſtrong, are more particularly dangerous, as a ſenſe of diſguſt does not naturally incline us to avoid them. Among theſe may be comprehended all vegetable odours ſtrongly volatile and pungent, and which thereby ſtimulate and ſtupify the nerves. Hence people, who carry large noſegays in the hot days of ſummer, are apt to feel themſelves variouſly and ſtrongly affected, particularly with drowſineſs. From this apparently innocent cauſe, head-achs, vertigoes, fainting-fits, and apoplexies have frequently

been produced in perſons of a plethoric habit. Theſe, as well as people of a delicate conſtitution, are liable to ſuch affections, from the fragrance of many balſamic plants, but particularly from the ſtrong ſcent of lilies, roſes, pinks, the bloſſoms of oranges, hyacinths, and the like.—Many flowers emit a more powerful fragrance in the night than in the day-time, and the effluvia of ſeveral trees and other vegetable bodies are peculiarly dangerous, and ſometimes mortal. Of this nature are the walnut and yew trees, under whoſe ſhades perſons have actually died, who had fallen aſleep; and likewiſe the deadly *Upas* of Surinam, and the no leſs poiſonous *Manchineel* tree of the Weſt Indies.

Aromatics of every kind taint the air in a ſimilar manner, introducing into the human body particles foreign to its nature, all exciting more or leſs an inclination to ſleep. Saffron and hops have ſometimes proved fatal; the former in particular has often produced a ſleep terminating in death, in thoſe incautious individuals, who had lain down in the ware-houſes or upon the bags, in which it was packed. Ambergris and muſk are alſo, on account of their powerful fragrance, very hurtful to perſons of an irritable and nervous temperament.

Dwellings in the vicinity of lakes, fens, and marſhes, are expoſed to all the noxious effects of a moiſt atmoſphere, namely, to the various ſpecies of intermittent fevers or agues;—on the other hand, it has been obſerved, that perſons living on the banks of rivers, though at times ſubject to theſe, are not very liable to

other diſeaſes, and that running water has a tendency to purify the air, when it is ſaturated with inflammable particles.

Too ſudden a tranſition from warm to cold air, or the reverſe, is pernicious; but to exchange, however ſuddenly, an unhealthy atmoſphere for a healthier, is at all times ſafe and highly adviſable. Numberleſs inſtances have proved, that ſuch as were conſtantly indiſpoſed in the corrupted air of a town, very quickly recovered their health, on removing to the purer atmoſphere of the country. Yet the queſtion, *Which air is the moſt wholeſome to live in?* will admit only of a conditional anſwer. We muſt attend not only to the particular conſtitution of the air, but alſo to the nature and habits of the individual. Neither ſhould we too haſtily pronounce every air unwholeſome, that does not appear to agree with us. The air of every climate, whether hot, cold, or temperate, may be called healthy, provided it be pure and clear, and occaſionally agitated by wind: but a groſs atmoſphere, and one loaded with animal or vegetable exhalations, is certainly deleterious. After all, perhaps the longevity of the inhabitants may be conſidered as the beſt evidence of a healthy diſtrict. Thus we find uncommonly long-lived perſons in high countries, or ſuch as are viſited by frequent winds, and alſo in ſmall ſea-port towns. In villages and places thinly inhabited, the proportion of aged people is conſiderably greater than in cities or populous towns. This may be aſcribed partly to a leſs degree of corruption in the air, and partly to

a more ſimple mode of life prevailing in ſuch places: for wealth and riches, the concomitant effects of which are greater luxury and extravagance in living, uſually keep pace with the increaſe of population; and if the numerous chimney-fires of our populous cities did not ſerve as ſo many well-contrived machines for rarefying the atmoſphere, incalculable miſchiefs muſt inevitably enſue.

Of the Improvement of Air in Dwelling-Houſes.

A HOUSE built on a riſing ground, on a healthy ſoil, in an open, dry country, and neither expoſed to the greateſt degree of cold in winter, nor to the higheſt point of heat in ſummer, may be ſaid to ſtand in a healthy ſituation. Hence thoſe apartments are the moſt healthful as well as comfortable to the individual, which enjoy a pure and free circulation of air in ſummer, and the cheering rays of the ſun in winter: the heat of ſummer being conſiderably tempered by the former, and the ſeverity of winter much abated by the latter. Farther, a proper ſize and height are requiſite to conſtitute a healthful apartment; for low rooms are detrimental to health, particularly when inhabited by large families, and ſeldom aired, or rather, which is frequently the caſe, when all air is carefully excluded by cloſe doors, ſhutters, curtains, &c. The moſt proper place of reſidence in winter is one with a ſouthern aſpect, not only as be-

ing more dry, but alſo more cheerful, and therefore attended with a favourable influence on the ſpirits. In ſummer, the ſituation of a room may be choſen either to the North or to the Eaſt, the latter of which is preferable, becauſe it admits the firſt enlivening rays of the Sun.

Although it is not in every perſon's power to chooſe his habitation agreeably to the laws of health; yet this choice of a pure and healthy air is not ſufficiently attended to, and it certainly deſerves as much conſideration in purchaſing an eſtate or country-houſe as the quality of the ſoil or other lucrative advantages.

The local conſtitution of the air depends not merely on the exhalations of the ſoil itſelf, but likewiſe on the different vapours, conducted to and blended with it by the winds, from adjoining places. Thus in a dry and ſandy country, conſidered of itſelf as healthy, the air may be rendered extremely unwholeſome from the vicinity of marſhes or other ſtagnant waters.

The better to judge of the ſalubrity of the air in any diſtrict, we ſhould examine the properties of the wells and ſprings; for both *air* and *water* abſorb the ſaline and mineral particles of the ſoil. We may pretty certainly conclude, that a country producing good water, enjoys likewiſe a ſalubrious air; and as the beſt water is taſteleſs, ſo the pureſt air is free from any ſmell whatever.

The moſt certain marks, by which to diſtinguiſh whether the air in rooms be damp or not, are the following: the walls or tapeſ-

try change their colour; bread in closets acquires a mouldy surface; sponges in the rooms retain their moisture; loaf-sugar turns soft; iron rusts; brass and copper acquire a green colour, or verdigris; and wooden furniture moulders and crumbles to pieces.

The sitting-room ought, if possible, to be above the ground floor, or in the second story; it should be so constructed as to admit a free current of air; but if this cannot be done, it should be frequently aired by opening the windows in dry weather, or by fumigating the room, either with vinegar dropped upon warm stones, or evaporated in a bason over a lamp, or with sugar, juniper-berries, and the like.

Every room is filled with *three* different *strata* of air: 1. The lower part of the room contains the heaviest species of air, namely, fixed or carbonic acid gas, particularly in apartments situated on the ground-floor, or even under ground; 2. The middle part of the room is filled with the lighter atmospheric air; and 3. The uppermost stratum contains the lightest or inflammable air, the most corrupted of the three, in consequence of the processes it has undergone by respiration and combustion. In lofty apartments this contaminated species of air is not inspired by the lungs; because the middle stratum, or the most wholesome of the three, extends to a height above that of a man.

A continual change of the air, by opening the doors and occasionally the windows, however advisable, is yet not sufficient to preserve

a healthy atmosphere in an apartment. For this important purpose the following improvements may be suggested as useful: 1st, Small apertures in the ceiling of the room, or through the walls close to the ceiling, in an oblique direction, so that the rain and snow cannot penetrate into it; 2d, Ventilators, that is, small moveable wheels made of brass or sheet-iron, which are applied to some part of the window-panes, and set in motion by the pressure of the external air. This is an excellent contrivance to introduce fresh atmospheric air into a room, by occasionally opening and shutting the door. The most proper height for placing these ventilators is about seven feet from the floor; 3d, Air-tubes running in a straight direction from the door to the fire-place, or rather to the wall of the chimney, and concealed under the floor of the room. As such tubes, however, are very expensive, and appear better calculated to convey the smoke up the chimney, after all means have been tried in vain, than to conduct the corrupted air from the upper part of a room, I shall mention a better and much easier method of effecting this purpose. It is a late discovery of a physician in France, who contrived it with a view to save the great expense of ventilating or airing large wards in hospitals, filled with patients who laboured under putrid distempers, particularly in the heat of summer. He caused a number of small holes to be made in the uppermost part of the window-frames; into these holes he placed from without an equal number of funnels, present-

ing an aperture of nine or twelve inches diameter, and terminating in the inside almoſt in a point, or at leaſt in an opening not exceeding the ſize of a ſmall quill. By means of theſe ſimple machines, the air in the ſick rooms was ſo effectually renewed, by the great and conſtant preſſure of atmoſpheric air from without, that any other artificial proceſs for correcting the putrid air in a large hoſpital was judged to be unneceſſary.

Above all things, the windows and doors of ſitting and bed-rooms, when it can be done conveniently, ought to be left open for a certain ſpace of time, every day. This, however, requires to be done at the proper time, neither too early in the morning, nor when it grows dark in the evening, during the vernal and autumnal months; nor at the time when the horizon is overſpread with a thick fog. The windows ſhould be opened, when the air is pure and ſerene; or, in general, when there is leſs danger to be apprehended from the external air than from that within. Sometimes it may be proper to make uſe of what is called *pumping* the room, or moving the door backward and forward for ſome minutes together; but in ſpring and autumn, our ſitting-rooms, and even in winter, bed-rooms, ought to be perflated every clear day, by currents of freſh air, for a conſiderable time.

In the hot days of ſummer, the windows may be opened early in the morning and in the evening, in order to cool and refreſh the heated air of the room by that from without.

It is however not safe (and has sometimes proved fatal) to leave the windows of a bedroom open at night during the summer-months, as there is no small hazard of checking perspiration by the cool night-air; the susceptibility of the pores being then very much increased by the heat of the day, and the warmth of the bed. Rooms which we inhabit in the day-time may be safely left open during the night. In summer-houses, or such as are surrounded with plants and trees, it will be proper not to open the windows of bed or other rooms, till some time after sun-rise, and to shut them at sun-set: they require also to be opened and shut sooner in hazy than in serene weather.

The airing of apartments should not be neglected even in winter, as coal-fires alone are not sufficient to carry off the corrupted particles of air, unless they be assisted by ventilators.—Here I must oppose and contradict a prevailing, yet mistaken notion, that fire in a room where the windows are open, introduces moist air. On the contrary, the most proper time for opening the windows is after lighting up a brisk fire; as the warmer air of the room will then be powerfully attracted by the colder atmospheric air, and the corrupt particles of the air within most speedily dissipated.

In *moist* and *cold* air, the dress should be somewhat warmer than usual: Flannel may then be worn with double advantage next the skin, and the rooms we inhabit should be warmed, or at least fumigated, with the ber-

ries of Juniper or similar shrubs. Fumigation is likewise attended with this advantage, that it contributes to dry and in some degree to warm the air.

In *moist* and *warm* air the explosion of a little gunpowder will be of use, or vinegar may be evaporated with greater safety, and the floor and walls sprinkled over with this excellent antiseptic.

Hot and *dry* air may be tempered by placing vessels filled with cold water in different parts of a room; or, as is often practised in hot climates, by sprinkling water over the floor. The greater or less degree of corruption of the air, in an apartment, depends very much on the kind of labour or exercise performed in it: Six watchmakers will not corrupt the air nearly so much as two carpenters would do in the same space and time; hence appears the necessity of appropriating lofty rooms instead of low garrets, for the workshops of mechanics.

Green plants and flowers placed before the windows are both an agreeable and useful ornament, if not of too strong a fragrance. In serene weather, it may be expedient to strew fresh plants (not flowers) in a dwelling-room, exposed to the rays of the sun, taking care, however, to remove them as soon as the sun withdraws. This method of exposing plants, or even the branches of trees with green leaves, in apartments, may have a beneficial influence on valetudinarians, and particularly on asthmatic persons, as vital air, or *oxygen* is

thereby generated, and introduced very gradually into the lungs.

Large trees with thick foliage ſhould not be placed very near the windows of a houſe; for, beſides that they obſtruct the acceſs of day-light and freſh air, and have thus a tendency to make the rooms damp, their exhalations in the evening, and during the night, are by no means wholeſome. Trees planted at the diſtance of eight or ten yards from the houſe, do not prevent the free acceſs of air; they preſent an agreeable object to the eye, and cannot be too much recommended, both on account of their cooling ſhade in ſummer, and the ſalutary exhalations they emit during the day.

It has been already mentioned, that the burning of candles corrupts the air; for which reaſon the cuſtom of illuminating aſſembly or other large rooms, with a *ſuperfluous* number of candles, muſt be very detrimental. This extravagance becomes ſtill more dangerous in places where, beſide the crowd of people, great quantities of proviſions, dreſſed with the richeſt ſpices of the Eaſt and Weſt, contribute to ſaturate the air with the moſt heterogeneous particles. And as perſons of tender lungs muſt ſuffer extremely in ſuch an atmoſphere, it would be proper to provide all public rooms with a competent number of conic ventilators, of the deſcription before mentioned.

Strictly ſpeaking, we ought not to ſit in the room where we dine, or take victuals, until it be aired again: thoſe who can afford this luxury, ſhould be careful not to ſtay for hours

together over their bottle in the dining-room: the bad effects of such contaminated air are not perceived by the persons continuing their libations after dinner, but are very sensibly felt by any one coming in from the fresh air.

It is no less unhealthy to sleep in a room where a quantity of *green fruit* is kept, a circumstance not attended to in country places, particularly by those who deal in fruit. From its fragrance a portion of inflammable matter exhales, which soon impregnates the air. Hence females of delicate habits have been known to faint, in approaching places where a few quinces were kept. For the same reason, store-rooms and pantries are extremely unwholesome, if provisions of all kinds, animal as well as vegetable, be kept in them; especially oil, candles, fat, flesh meat, whether raw, boiled, or roasted, pastry, and the like.

As foul linen readily imbibes the perspirable matter of the skin, it should never be suffered to remain any time in a bed-room, or sitting-room.

If possible, we should not sit through the day in a room in which we have slept; as the bed-clothes, and particularly feather beds, very slowly part with the exhalations they have imbibed during the night, neither is it sufficient for purifying the air of the room, that it has been ever so well aired in the morning.

The vapour of *charcoal* produces, particularly in close apartments, dangerous and frequently fatal effects. It fills the atmosphere with sulphuric particles which may be inspired, but cannot be expired:—they retard the

motion of the blood-veſſels, ſtagnate the blood itſelf, penetrate into the head, and produce an acute pain, vertigo, and torpor. Hence the greateſt precaution is neceſſary, where charcoal is uſed, as innumerable fatal accidents have happened from this ſource. Dyers, who employ it for drying their cloth upon frames, ſeldom fail to experience great injury to their health.

All employments, in which perſons work among impure wool, oil, colours, and the like, are to a certain degree detrimental to health. Waſhing, ironing, dreſſing the hair with greaſy curling-irons, burning lamp oil, frequent painting of the walls, all ſaturate the air of a room with pernicious damp and ſulphuric vapours. From the change, which oil and candles in a ſtate of combuſtion produce in the colour of a white wall and white curtains, we may infer, that this fetid ſteam muſt alſo penetrate into the human body, and if ſo, muſt materially affect it.

It farther deſerves to be remarked, that all damp vapours are prejudicial, although they ſhould not in themſelves have a tendency to corrupt the air. Hence the keeping of wet linen, or even wet clothes, umbrellas, and the like, in dwelling-rooms, ſhould by all means be avoided. Mechanics and others, who are obliged to dry wet things in their ſtrongly heated apartments—joiners, turners, potters, bookbinders, &c. are particularly liable to ſwellings, and other diſagreeable affections in the relaxed veſſels of abſorption.

Of Heat and Cold.

As obſervation and experience inform us, that immoderate heat relaxes the body, overheats the blood, and exſiccates or conſumes the other fluids; and that the people who live in temperate regions are more hardy and vigorous, and attain to a greater age, than the inhabitants of warmer climates; it follows from theſe premiſes, that we ought not to enervate the human body by keeping it immoderately warm, by dreſſing it with a ſuperfluity of clothes, by plunging it unneceſſarily into hot baths, by uſing too ſtrong fires in temperate weather, or leaſt of all, by ſleeping in warm rooms, and perhaps on the moſt heating of all ſubſtances, feather beds. The temperature of a ſitting-room ſhould not exceed 60° of Fahrenheit's thermometer; that of a bed-room may be about 50°, as the medium temperature of our climate is between 50 and 55°.

Although man is, no doubt, capable of inuring himſelf to a very great degree of heat as well as of cold, yet ſudden changes can be ſupported only by the few who poſſeſs very hardened conſtitutions. The gradual changes of the ſeaſons prepare us in the ſafeſt manner to ſuſtain all the alternations of cold and hot weather. It is therefore an error, and of no ſmall conſequence, in the modern ſyſtem of education, that we generally endeavour to habituate our children to the ſupport of cold weather only. Perſons who cannot bear the heat of the ſun, or ſtrongly heated rooms, are,

from their exceſſive delicacy, frequently expoſed to the moſt violent, nay to mortal accidents. Hence children ought to be ſlowly and gradually accuſtomed to theſe inconveniencies, which indeed occur frequently, and are more dangerous than thoſe ariſing from ſudden tranſitions to a colder temperature: for the effects of the latter may, in a great meaſure, be obviated by exerciſe and muſcular action.

In the ſultry days of ſummer, we ſhould be particularly on our guard againſt violently overheating the body;—in autumn, we ſhould not dreſs too lightly, and in the mornings and evenings always ſomewhat warmer;—in ſhort, we ought to avoid every thing that appears likely to check and repel perſpiration. The baneful cuſtom of accommodating our dreſs to the almanack and the faſhion, rather than to the viciſſitudes of the weather, in this inconſtant climate, muſt neceſſarily be productive of many diſagreeable conſequences. Above all things, we ought to change our ſummer-dreſs pretty early in autumn, and to clothe ourſelves gradually warmer, according to the variations of the weather. Yet after all, perhaps it would be moſt adviſable to accuſtom ourſelves to one kind of dreſs only for all ſeaſons. The propriety of this cuſtom I ſhall more particularly conſider in the fourth Chapter.

With reſpect to the proper time for heating rooms in autumn, it has been ſuppoſed, that early fires are unwholeſome and productive of frequent catarrhs. This aſſertion is

certainly ill founded; for in warming a room, as well as in clothing the body, we ſhould not ſo much be regulated by the particular time of the year, as the ſtate of the weather, and the degrees of actual heat and cold: in attending to this circumſtance, we cannot eaſily miſtake. If, in the temperate days of autumn, the room ſhould feel colder than the external air, it is time to make a moderate fire: in damp and cold weather this is an uſeful precaution, even in ſummer. Thoſe who from caprice, parſimony, or prejudice, would rather ſhiver on ſome weeks longer, than conſult their ſenſations, often feel the conſequence of a violent cold. The Dutch and German ſtoves certainly afford more uniform heat in a room, though they might not be conſidered cheerful enough for an Engliſh company.

As we can neither breathe nor live without freſh air, we ought not to withdraw our bodies too much from the bracing effects of cold. In this reſpect, we ſhould act conformably to nature, that is, in the ſame degree as the warmer weather changes to a colder ſtate, we ſhould gradually expoſe ourſelves to the various changes of temperature. The cold will then neither feel unpleaſant, nor impede the neceſſary perſpiration; eſpecially if we oppoſe it with vigour and bodily exerciſe. We ought alſo to take more ſolid ſuſtenance in winter than in ſummer; becauſe, by the longer continued motion or digeſtive proceſs of the ſtomach, the circulation of the blood is accelerated, from which the natural heat of the body is produced. Nature herſelf dictates

a compliance with this precept, as she has provided us with more substantial articles of food during the former season than the latter.

Lastly, as every sudden change of the weather from heat to cold, and the reverse, is prejudicial to the body, we ought to guard against every circumstance by which *perspiration* may be suddenly checked. Hence we never should remove from a strongly heated apartment into a fresh and cold air, unless we are provided with a warmer dress ;—in hot days, or after violent exercise, we should not frequent vaults, cellars, or ice-houses, undress immediately after overheating the body, nor take rest upon a damp soil or upon stones, nor bathe in cold water. Such transgressions have often been punished with instant death, or, what is still worse, have brought on a painful and lingering species of consumption, which has hitherto baffled the united efforts of the Faculty, and which annually makes dreadful havoc among people of a middle age.* It is devoutly to be wished, that the experiments, now

* According to the statement given by the Bills of Mortality, the total number of deaths in London, during the three spring months of 1799, amounted to 5271. Among these, no less than 1353, or *upwards of one fourth*, were carried off by *consumption !*—Although consumption and *decline* are terms often used to express many other *chronic* diseases, as well as *pulmonary consumption*, so that the above stated number probably includes various species of decline, yet, even with these allowances, the number of victims to *general consumption* is truly terrific. Let the reader reflect, for a moment, on the following melancholy inference :—If the population of the country consist of between nine and ten millions, of whom the 30th or the 33d part, that is, about 300,000, die annually, it follows that this merciless disease, CONSUMPTION, cuts off about 80,000 persons every year, in Great Britain alone, and these generally in the prime of life, when Society ought to be benefited by their mental and bodily exertions ! !

purſued with factitious airs or gaſes, and with the fox-glove, may afford ſome remedy againſt this formidable deſtroyer of the human ſpecies, which cuts off incredible numbers in the bloom of life, and ſpares neither age, rank, nor ſex. And, as there is ſo much reaſon to believe, that a great proportion of conſumptive caſes originate from the ſudden tranſitions above mentioned, no language can be ſtrong enough to deprecate practices, as injudicious as they are deſtructive.

CHAP. III.

Of Cleanlineſs, and its various modifications, ſo far as it is immediately connected with Health; —the management of the Teeth;—the uſe of Baths, &c.

Of Cleanlineſs in general.

THIS domeſtic virtue ought to extend its influence to every object connected with the human frame; to the preparation and conſumption of food and drink; to dreſs, habitation, houſehold furniture, and all our phyſical wants; in a word, cleanlineſs ſhould not be confined merely to the interior domeſtic economy; it claims our attention in every place which we occupy, and wherein we breathe.

Let our clothes, linen, beds, covers, blankets and ſheets, be clean and dry; as all theſe ſubſtances abſorb perſpirable matter, and check the proceſs of perſpiration. Articles of dreſs which are ſoiled, and come into contact with the ſkin, being placed immediately over the pores, reimbibe the humours already perſpired, and return them to the body by the abſorbents. Dirty linen will never attract the uſeleſs or noxious matter, which is ſecreted from the blood, and ejected from the body; it remains on the pores of the ſkin, and is either again abſorbed by the veſſels, or clogs thoſe emunctories which require always to be kept open. For a ſimilar reaſon, it is highly

improper and dangerous to wear the clothes of ſick perſons, eſpecially in contagious diſtempers.

Let the body, and particularly the joints, be frequently waſhed with pure water, eſpecially in ſummer, when the perſpirable matter, being of an unctuous, clammy nature, obſtructs the excretion by the pores. The face, neck and hands, being moſt expoſed to the air, duſt, and the like, ought to be daily waſhed, both morning and evening. Attention ſhould alſo be paid to the ears, by cleaning them occaſionally; ſo that the ſenſe of hearing may not be impaired by an accumulation of wax, which from its acrid nature may prove unpleaſant as well as injurious. The whole head ought to be frequently waſhed and cleaned, even though no hair-powder be uſed; as it perſpires very much, and is beſides expoſed to duſt and other particles in the atmoſphere. Waſhing opens the pores, while the comb, by its cloſe application to the ſkin, diſſolves the viſcid humours, and renders them fluid.

The mouth ſhould be rinſed every morning, after dinner, and at night, with cold water; but in winter the chill ſhould be taken off. The frequent waſhing of the mouth is otherwiſe neceſſary, becauſe the viſcid ſlime, and ſmall particles of food which ſettle about the interſtices of the teeth, are very apt to putrify, and, if not removed, will infect the breath, and gradually injure the teeth themſelves. Beſides, this ſlime ſettles on the tongue,

covers the papillæ by which food is tasted, and renders the palate less sensible.

It is scarcely necessary to observe, that the nose also should not be overlooked, as by neglecting to remove the secreted moisture in due time, the effects may become troublesome and detrimental to the organs of smell. In children, the nose ought to be occasionally washed; it having been found that the unpleasant smell, peculiar to some infants, is owing to the habitual neglect of cleaning that organ.

The tongue should be cleaned every morning, either with a small piece of whalebone, or with a sage leaf. This leaf is likewise useful for polishing the teeth. To clean the throat, we should gargle it with fresh water, and swallow a mouthful of water every morning—the latter, however, must not be attempted too hastily; but, when we once accustom ourselves to the practice, we shall find it attended with advantage.

It is necessary, particularly in hot weather, to wash the feet frequently; as they perspire much, and are more exposed to dust than any other part of the body. The water should be warm, but not too much so, because hot water thus used relaxes the fibres, drives the blood upwards, and occasions head-achs. The proper degree of heat for young persons to wash in, is between 96 and 98° of Fahrenheit, and for the aged between 98 and 100°, or somewhat more than milk-warm.

The removing of the beard and nails is no insignificant matter in the care of health. By shaving, we promote perspiration. Long

nails, especially as they were in fashion some years ago, disfigure the hands, and prevent the feet from expanding properly: but the nails ought not to be cut too close, otherwise the toes will be obstructed in their pressure on the ground, and the fingers in feeling. They may also be easily wounded; and wounds under the nails are generally attended with disagreeable consequences, on account of the many nerves running in that direction. Too long nails on the toes are apt to grow into the flesh, to become an obstacle in walking, and sometimes to occasion considerable pain.

In the vessels used for preparing food and drink, we ought likewise to pay proper attention to cleanliness. Every particle of filth introduced into the stomach may prove hurtful to it, to the tender intestines, to the blood, and consequently to the whole body. For the same reason, it is not only indelicate, but also unwholesome, to dine or take any food in places where an offensive smell prevails.

On the management of the Teeth.

The principal requisite for the preservation of the teeth is, never to retire to rest without having cleaned them: for this prevents the viscous matter of food, collected during the day, from corrupting them in the night. The tooth-ach, now so common, is frequently owing to a hollow state of the teeth, but still more frequently originates in a want of clean-

lineſs. The cleaning of the teeth, however, requires precaution. What is called the Tartar of the Teeth, is of a corroſive nature, and ſhould be removed with the greateſt care. The manner in which moſt Dentiſts treat the teeth, as well as their powders, tinctures, and other dentifrices, although highly puffed off and ſtrongly recommended, are obviouſly pernicious. They deprive the teeth of their enamel, make them looſe, and ſpoil the gums. The various dentifrices, whether *Royal* or *Imperial*, advertiſed in the public papers, are at leaſt of doubtful, if not injurious effect. It is an aſtoniſhing inſtance of credulity and infatuation, that people will take external and internal *medicines upon truſt*, when they would heſitate to take any *food*, with which they are unacquainted.

If there be too much tartar, ſo that it adheres like a cement between two teeth, its being incautiouſly removed will deprive the teeth of the tartarous coheſion, and conſequently of their ſupport; thus, from the conſtant contact of the tongue, lips and food, they will be ſhaken and looſened. The ſame will happen, ſhould the tartar be allowed to eat away the gum from the root of the tooth. If in this caſe the foundation of the tooth be injured, it will neceſſarily be rendered looſe, the gums being no longer able to retain a tooth, which is deprived of its intermediate cement.

The tartar therefore muſt not be broken, all at once, with iron or glaſs inſtruments; but may be gradually ſcraped away with a

blunt or broad cut quill, or ſome ſimilar ſubſtance, from which the enamel of the teeth can ſuffer no injury. Moſt kinds of diſſolvent drops, eſpecially thoſe ſold as ſpecifics for whitening the teeth, are made up of vitriolic acid, diluted with ſome diſtilled waters—They are of no ſervice, but, on the contrary, remove the enamel with the tartar, and thus ſpoil the teeth for ever. The common tooth-bruſhes are liable to the ſame objection.

To prevent the tartar from ſettling on the teeth, they ought to be kept clean, by waſhing them every morning and evening. Certain articles of food and drink ſhould likewiſe be mentioned, as having a tendency to produce and accumulate the tartar—ſuch are all viſcous and ſaline ſubſtances, as ſalted and ſmoked meat, cheeſe, roaſted eggs, the fleſh of tame and wild animals kept too long for the ſake of making it more tender and palatable, truffles, and all ſpecies of muſhrooms; beans, peas, cheſnuts, vinegar, tart wines, and all kinds of acid fruit.

An expedient equally ſafe and effectual, for removing the tartar, is, to cover the teeth with a fine powder of *Gum Tragacanth*, or with ſoft wax, and by that means to extract the tartar at once, together with this adheſive covering.

Although it does not enter into the plan of theſe Lectures to treat of the various diſeaſes to which the teeth are ſubject, or to deſcribe the different methods purſued in curing them, yet I judge it neceſſary to point out ſome of the moſt ſimple and approved remedies in that

very painful affection, the tooth-ach. If the complaint proceed from a hollow and carious tooth, ſome ſoft extract of the Peruvian Bark may be placed in the cavity of the tooth; if this ſhould not remove the pain, a few drops of *Cajeput oil* upon cotton may be applied to the hollow tooth, or rubbed externally upon the painful ſide of the cheek. THUNBERG, the Swediſh Traveller, introduced the uſe of Cajeput oil into Europe, having often witneſſed its powerful and almoſt inſtantaneous effects in the Eaſt Indies, where it is the laſt and only comfort of gouty and rheumatic ſufferers.

Dr. Richter, an eminent Phyſician of Göttingen, informs us that he has frequently relieved the moſt violent tooth-ach, by applying externally the eſſence of *pimpinella*, or Burnet-ſaxifrage, with an equal quantity of laudanum, adding to it a drop or two of the eſſential oil of cloves. Though external remedies are not likely to effect a radical cure of this malady, yet in urgent caſes they may be ſafely reſorted to, eſpecially if applied ſo as not to injure the ſkin of the face; for they will often produce a temporary relief. If, however, the tooth-ach proceed from *no local* cauſe; if, for inſtance, it be owing to a corrupted ſtomach, to catarrhal, rheumatic, hyſteric, venereal, or other affections; all the ſpecifics ever diſcovered cannot remove the pain, until the cauſe alſo be, wholly or in part, removed. In my own practice, I have found the oil of Savin, or Juniper oil, preferable to laudanum, in its effects on a hollow tooth; the latter is at beſt an uncertain remedy.

In ſcorbutic affections of the teeth and gums, a vegetable diet, conſiſting chiefly of ripe fruit, and mucilaginous vegetables, will be found the beſt corrective. Beſide theſe, a fine powder, made of three parts of double-refined ſugar, and one part of burnt alum, may be employed with advantage for the purpoſe of rubbing them. Sugar is an excellent antiſeptic; and IMBERT DE LONNES, a French Phyſician, reports, that a whole ſhip's company was once cured of an alarming ſcurvy, by living for ſome time, from neceſſity, upon ſugar alone. We ſhould alſo conſider the connexion ſubſiſting between the teeth and the ſtomach; if the former be unequal to the purpoſes of maſtication, the digeſtive powers will be gradually impaired, and the ſoundeſt ſtomach corrupted. To neglect the teeth, therefore, is to neglect the ſtomach; and if the ſtomach be weakened, the whole maſs of the fluids, and particularly the blood, will ultimately be tainted with crude, unaſſimilated, and acrimonious humours.

To diſſolve and waſh away the ſuperfluous, ſlimy, and unctuous matters which produce the tartar, freſh water is ſufficient; or it may be rendered a little more acrid by the admixture of a ſmall quantity of common ſalt. Acids and alkalies, ſo frequently employed as dentifrices, are of too corroſive a nature; and alkalies in particular injure the gums, perhaps the teeth themſelves, while acids deprive them of their enamel, and thus occaſion a ſpeedy external corruption and inevitable gangrene within.

The moſt ſimple dentifrice is a cruſt of bread hard toaſted, and reduced to a fine powder. This is fully calculated to abſorb the viſcid, oleaginous particles, and to remove the ſtony or tartarous matter. The bread, however, ſhould not be toaſted too black, as in that caſe it would evolve an acrid alkaline ſalt, which might prove hurtful. A ſtill better dentifrice is a moderately fine powder of the Peruvian Bark, particularly of the genuine red ſpecies, which ſtrengthens the gums, without inflaming them.

In cleaning the teeth we ought not to make uſe of bruſhes or ſponges, but of the finger, which being provided with the fineſt papillary veſſels, is a much better and more proper inſtrument, and precludes the neceſſity of reſorting to artificial means. Beſides, the finger has the advantage of being ſoft and pliable, and of feeling any immoderate preſſure too ſenſibly, to permit us to do injury to the teeth or gums :—hence, it is an ill-judged delicacy alone which can prevent us from making uſe of it, preferably to even the beſt tooth-bruſhes.

For cleaning the interſtices between the teeth, we ſhould not employ pins or needles, whether made of gold, ſilver, or ſteel; for all metallic ſubſtances are apt to canker the teeth. If toothpicks be at all adviſable, they ſhould be made of ſoft wood, or quills cut in a blunt point. In my own opinion, none ſhould be uſed; for, of whatever materials they are made, they open, looſen, and injure the teeth, by making room for the tartar and

other matters, to prey upon the teeth and gums. To anſwer every purpoſe of tooth-picks, a thick and ſoft cotton cloth ſhould be uſed, to rub the teeth over gently after every meal: but if people have once accuſtomed themſelves to regularly picking their teeth, then indeed the cotton frictions may perhaps be too late.

Laſtly, the cleaning and bruſhing of the teeth, however uſeful and neceſſary, is inſufficient to prevent the ſettling of the tartar, and the conſequent injury to the teeth; for the ſource of both evils does not exiſt in the mouth, but really proceeds from the ſtomach, and a corrupted ſtate of the fluids. For this reaſon, the medical treatment of the teeth requires a particular regimen and diet, according to the individual caſe of every patient.

Of the Uſe of Baths.

This important branch of dietetic regimen is of excellent uſe and efficacy, both in the cure and prevention of diſeaſes. Though the ancients could leſs diſpenſe with the uſe of the bath, on account of the frequency of their athletic exerciſes, as well as from the want of linen, which was then much leſs in uſe than at preſent, yet in our times it would be of great ſervice, if the uſe of baths were more general and frequent, and this beneficial practice not confined to particular places or ſeaſons, as a mere matter of faſhion. Con-

ſidered as a ſpecies of univerſal domeſtic remedy, as one which forms the baſis of cleanlineſs, bathing, in its different forms, may be pronounced one of the moſt extenſive and beneficial reſtorers of health and vigour. I am not ſo ſanguine, however, in my expectations, as to think that the cure of all maladies and diſeaſes may be effected by the bath, as was lately promiſed by a noted empiric in this country, who moſt ſagaciouſly impregnated his vapour baths with the collective produce of the vegetable kingdom. Such a general remedy is juſt as chimerical as the moſt famous panaceas, the tincture of gold not excepted.

Bathing, whether in warm or cold water, produces the moſt ſalutary effect on the abſorbent veſſels; which would otherwiſe reconduct the impurities of the ſkin through the pores, to the no ſmall injury of health. To thoſe in a perfect ſtate of vigour, the frequent uſe of the bath is leſs neceſſary than to the infirm; as the healthy poſſeſs a greater power to reſiſt impurities, by means of their unimpaired perſpiration, the elaſticity of their minute veſſels, and the due conſiſtence of their circulating fluids. The caſe is very different with the infirm, the delicate, and the aged. In theſe, the ſlowneſs of circulation, the viſcidity or clammineſs of the fluids, the conſtant efforts of nature to propel the impurities towards the ſkin, combine to render the frequent waſhing of their bodies an eſſential requiſite to their phyſical exiſtence.

Baths, considered as the means of curing diseases and restoring health, if judiciously applied, are likewise of peculiar advantage; and though, in this respect, they do not properly make part of a regular system of dietetics, yet I shall request the indulgence of the reader, while I make a few necessary remarks relative to the proper application of the bath, it being so frequently used as a mere dietetic remedy. Much depends on a clear and accurate knowledge of the properties and effects of the different baths. I shall therefore divide them into two principal classes, the *warm* and the *cold* bath.

The *warm*, that is, the tepid or lukewarm bath, being about the temperature of the blood, between 96 and 98° of Fahrenheit, has usually been considered as apt to weaken and relax the body; but this is certainly an ill-founded notion. It is only when its heat exceeds that of the human body (as in the *Hot Bath* and *King's Bath* at BATH, both of which are from 18 to 20 degrees higher than blood-heat) that the warm bath *can* produce a debilitating effect. Indeed, baths of the above immoderate heat ought not to be used in their natural state, that is, without reducing their temperature by cold water, except in particular cases, and under the immediate advice of a physician. On the contrary, the lukewarm or tepid bath, from 96 downwards to 85, is always safe; and is so far from relaxing the tone of the solids, that it may justly be considered as one of the most powerful and universal restoratives with which we are

acquainted. Inſtead of heating the body, it has a cooling effect; it diminiſhes the quickneſs of the pulſe, and reduces it in a greater proportion, according as the pulſe has been more quick and unnatural, and according to the length of time the bath is continued. Hence tepid baths are of eminent ſervice, where the body has been over-heated, from whatever cauſe, whether after fatigue from travelling, or ſevere bodily exerciſe, or after violent exertion and perturbation of mind; as they allay the tempeſtuous and irregular movements of the body, and conſequently, in the ſtricteſt ſenſe, invigorate the ſyſtem. By their ſoftening, moiſtening, and tumifying power, they greatly contribute to the formation and growth of the body of young perſons, and are of ſingular benefit to thoſe, in whom we perceive a tendency to arrive too early at the conſiſtence of a ſettled age; ſo that the warm bath is particularly adapted to prolong the ſtate of youth, and retard for ſome time the approach of full manhood. This effect the tepid baths produce in a manner exactly alike, in the coldeſt as well as in the hotteſt climates.

From what has been advanced, it will not be difficult to diſcover, in what particular diſorders the tepid bath may be of the greateſt ſervice, and the reaſon why they prove ſo eminently uſeful (particularly in a parched and rough ſtate of the ſkin) in paralytic, ſpaſmodic, bilious, conſumptive, hypochondriac, hyſteric, and inſane caſes, as well as in an acrimonious and corrupted ſtate of the fluids,

such as scorbutic and leprous eruptions, lues, &c. One obvious effect of the habitual use of the bath, particularly the tepid, is, that it softens and renews the external integuments of the body. It considerably increases the pressure on the body from without; hence breathing, particularly on entering the bath, is frequently somewhat difficult, until the muscles have by practice become inured to a greater degree of resistance. Yet this effect, which in most instances is of small importance, requires the greatest precaution in some particular cases, so far as to prevent the use of the bath altogether; for instance, in persons of a full habit, who are in danger of breaking some of the internal blood-vessels, by the precipitate use of the bath, whether warm or cold.

These few hints will be sufficient to determine the cases, in which the lukewarm bath may be resorted to with safety and advantage, as a *dietetical* remedy. Its application in the treatment of diseases is foreign to the object of this Chapter, and demands the most minute inquiry into the nature of the cases which indicate the use of it, as it is of itself a potent remedy, which, if improperly used, may produce a contrary effect.

Bathing in rivers, as well as in the sea, is effectual for every purpose of cleaning the body; it washes away impurities from the surface, opens the cutaneous vessels for a due perspiration, and increases the activity of the circulation of the blood. For these reasons, it cannot be too much recommended, not only to the infirm and debilitated, under cer-

tain reſtrictions, but likewiſe to the healthy. The apprehenſion of bad conſequences from the coldneſs of the water, is in reality ill-founded; for, beſides that it produces a ſtrengthening effect, by its aſtringent property, the cold ſenſation is not of itſelf hurtful.

The ſame precaution, however, is requiſite in the uſe of the cold as that of the tepid bath; for after having overheated the body, eſpecially in the hot days of ſummer, it may prove inſtantly fatal, by inducing a ſtate of apoplexy. Hence the plethoric, the aſthmatic, and all thoſe who perceive a great determination of the blood to the head, ſhould be very circumſpect in its uſe. For although the conſequence may not prove immediately fatal, yet the too great ſtrain and preſſure may eaſily burſt ſome of the ſmaller blood-veſſels in the head or breaſt, and thereby lay the foundation of an incurable diſorder. To ſuch as are of a ſound and robuſt conſtitution, bathing may be rendered an agreeable exerciſe, by ſwimming againſt the ſtream; for, the fibres and veſſels being obliged to reſiſt the power of the undulating waves, the nerves are thereby excited into action.

Before I proceed to lay down dietetical rules for the uſe of the bath, I ſhall premiſe a brief hiſtorical narrative of this excellent practice, and generally explain its ſenſible effects.

Among the Greeks, and particularly the Spartans, bathing was not intruſted to the caprice of individuals, but conſidered as a public inſtitution, being governed and arranged agreeably to the expreſs laws of the State. We

learn alſo from Sacred Hiſtory, that among the Jews, at a much earlier period, perſons under certain circumſtances were pronounced unclean, and conſequently unfit to hold any intercourſe or communion with others, until they had performed the appointed ablutions. The Greeks, according to their own hiſtorians, learnt this practice from the Egyptians, and the Romans from the Greeks. With thoſe celebrated nations, public and private baths formed an important branch of uſeful and ornamental architecture. Many opulent individuals courted the favour of the people by laviſhing their treaſures in the eſtabliſhment and decoration of public baths; and to this day we frequently diſcover the valuable remains of theſe national edifices. Among the Romans, the baths were in time converted into regular and luxurious dwelling-places, in which the ſons of the patricians and of the wealthy were educated; a circumſtance ſufficiently aſcertained in the hiſtory of CHARLES the Great.

The changes which the contact of cold water produces on the body, naturally lead us to inquire into the phyſical nature and properties of the cold bath. The lighteſt water is at leaſt 800 times heavier than air; from which it has been concluded, that the former preſſes upon the human body with a force proportionally great. If, therefore, the column of air, which preſſes upon our body with a force equal to 39,900lb. could be converted into water, the whole weight of that preſſure would amount to 31,920,000lb. Yet, as our health

is affected by a difference in the preſſure of the air, occaſionally varying from 3 to 4000lb. we may eaſily underſtand, that the human body is not calculated to ſuſtain, for any length of time, the great preſſure of water. From this cauſe, the moſt experienced negro divers dare not venture beyond a certain depth of the ſea; well knowing it would be impoſſible to riſe up againſt the additional weight of water incumbent upon their bodies.

The ſenſible *properties* of the *Cold Bath*, in general, conſiſt in its power of contracting the ſolid parts, and of inſpiſſating the fluids. Any part of the body, which is expoſed to the ſudden contact of cold water, experiences at the ſame inſtant a degree of tenſion and contraction, and becomes narrow and ſmaller. Not only the blood-veſſels, but likewiſe the ſmall capillary tubes, are liable to this contraction and ſubſequent relaxation. What is vulgarly called *gooſe-ſkin* is an effort of the cutaneous fibres, a contraction of the orifices of the abſorbent and exhalant veſſels, occaſioned by mental perturbation, ſpaſms, or the effect of cold.—Hence it happens, that by the cold bath all the blood-veſſels of the ſkin, and of the muſcles in immediate contact with it, are ſo conſtricted and diminiſhed, that at the time of this violent exertion they are unable to receive the uſual quantity of blood. The ſmaller veſſels of the ſkin are likewiſe cloſed, and preſs upon the humours contained in them, ſo as to prevent all perſpiration during this preſſure. Thus all the fibres of the ſkin and muſcles are brought into cloſe contact; and

if the humours contained in these tubes had no other outlets, by which to discharge themselves, they would become thick or inspissated, and lose their natural warmth. Were this inspissation of the fluids really to take place, it would be attended with dangerous stagnations and obstructions. That it does not, however, produce these fatal effects, may be ascribed to the following cause. As soon as the pressure is made against the external vessels, the blood retreats from them, in search of places where it may find less resistance. All the great vessels within the body afford receptacles, into which it now flows, till the principal arteries, and the veins of the intestines, being filled, extended, and enlarged, it rises to the heart. Although the effect consequent on the cold bath may be considered as altogether mechanical, yet this simple operation is frequently productive of the most important and beneficial effects.

All other strengthening remedies, operating, in general, only on the fluid parts of the body, require to be previously dissolved by the fluids, blended with the mass of blood, and thereby conducted to the solid parts. The cold bath, on the contrary, acts almost instantaneously on the solid parts themselves, and produces its bracing effect, before a single drop of blood has been commuted. From which remedy, therefore, is it most likely we should derive the desired effect, that which immediately answers the purpose, or that which must pass through so many canals, and undergo so many changes, before it arrives at the

place where it is to exert its efficacy? The ſudden changes ariſing from the application of the cold bath contribute in various ways to brace the human body. The relaxed fibres of the ſkin and the muſcles acquire more ſolidity and compactneſs from contraction. Their elaſticity is increaſed, and thus a conſiderable defect removed: the nerves are ſtimulated and incited to thoſe powerful exertions, on which the eaſe, vigour, and habitual ſprightlineſs of the body ſo much depend. From that degree of irritability which the nerves poſſeſs, when in a debilitated ſtate, ariſe all hyſteric, ſpaſmodic, and convulſive ſymptoms and affections. Theſe may be mitigated or removed by the cold bath; becauſe it greatly affects and alters the ſtate of the nerves; it ſhakes and animates them, and by its forcible operation overcomes their tendency to preternatural rigidity and other diſagreeable ſenſations. Here then we have two cauſes, which illuſtrate the excellent effects of this remedy: there remains, however, a third, more important and powerful, yet to be explained.

The blood, which by external preſſure is driven into the internal veſſels, extends and enlarges them, without diminiſhing that contractile force or tendency which is peculiar to every artery. At the moment when the external preſſure ceaſes, all the internal veſſels exert their powers of ſelf-contraction more forcibly than uſual, as they are more ſtrongly extended, and conſequently enabled to exerciſe a greater force. The blood returned to the cutaneous and muſcular veſſels, finds its

reſervoirs contracted and invigorated; it flows through muſcles, the fibres of which have acquired greater elaſticity and power of reſiſtance. It is accelerated in its new motion by theſe improved fibres and veins, and the reſult of the collective powers is a freſh impulſe and rapidity given to its circulation. Although, at the firſt immerſion, the uniform courſe of it is ſomewhat interrupted, this temporary ſtoppage ſerves afterwards to re-eſtabliſh and promote it. The blood can now penetrate with eaſe into the ſmalleſt capillary veſſels; and it can circulate freely through every part of the animal machine, without affecting or relaxing the ſolids.*

* Such are the advantages which the theory of bathing holds out. I ſhall, however, quote a reſpectable authority, which may be of uſe to remove ſome erroneous notions hitherto very prevalent, in the practice of cold bathing.

"In the earlier ſtages of exerciſe, (ſays Dr. CURRIE, of *Liverpool*,) before profuſe perſpiration has diſſipated the heat, and fatigue debilitated the living power, nothing is more ſafe, according to my experience, than the cold bath. This is ſo true, that I have for ſome years conſtantly directed infirm perſons to uſe ſuch a degree of exerciſe, before immerſion, as may produce ſome increaſed action of the vaſcular ſyſtem, with ſome increaſe of heat, and thus ſecure a force of reaction under the ſhock, which otherwiſe might not always take place. The popular opinion, that it is ſafeſt to go perfectly cool into the water, is founded on erroneous notions, and ſometimes productive of injurious conſequences. Thus perſons heated and beginning to perſpire, often think it neceſſary to wait on the edge of the bath, until they are perfectly cooled, and then plunging into the water, feel a ſudden chilline's that is alarming and dangerous. In ſuch caſes the injury is generally imputed to going into the water too warm, whereas in truth it ariſes from going in too cold.

"But though it be perfectly ſafe to go into the cold bath in the earlier ſtages of exerciſe, nothing is more dangerous than this practice, after exerciſe has produced profuſe perſpiration, and terminated in languor and fatigue; becauſe in ſuch circumſtances the heat is not only ſinking rapidly, but the ſyſtem parts more eaſily with the portion that remains.

"In his Eſſay on Swimming, FRANKLIN makes the following obſervation:—'*During the great heats of ſummer, there is no danger in*

The healthy and the vigorous, who resort to the cold bath, on account of its cleansing and bracing effects, may continue in it, with safety, for a considerable time. But to strengthen and to give elasticity to the solid parts, every thing depends upon the sudden impression of the cold. This primary effect will be weakened or frustrated by remaining in the bath till the water feels warm, whereby the pressing or vibrating action on the nerves at length ceases. The most proper time of bathing is, when the stomach is not employed in digestion; as in the morning or forenoon, or from three to four hours after dinner.

The cold bath, between 65 and 32° of Fahrenheit, is not, strictly speaking, a dietetic

bathing, however warm we may be, in rivers which have been thoroughly warmed by the sun. But to throw ourselves into cold spring water, when the body has been heated by exercise in the sun, is an imprudence which may prove fatal. I once knew an instance of four young men, who, having worked at harvest in the heat of the day, with a view of refreshing themselves, plunged into a spring of cold water; two died on the spot, a third the next morning, and the fourth recovered with great difficulty.' The authority of the American Baron is of great weight in Medicine, as in every branch of science, and particularly in what respects immersion in water; for doubtless he spent more time in this element, than any philosopher of modern days. It may, however, be easily supposed, that he adopted the commonly received opinion, that the injury arose from the persons in question going in *when hot*, instead of from going in *when cooling, after having been heated*; to which last circumstance it can hardly be doubted, that the fatal accident he relates was to be imputed."

These remarks are worthy of the learned Dr. Currie;—at the same time, instead of advising any person to use the *cold bath* after exercise, I would certainly prefer the *tepid* or *lukewarm bath*, both on account of the greater safety attending the use of it, and because it possesses nearly all the advantages of the cold bath, without being liable to so many strong objections. Besides, the cold bath is altogether improper in a weak state of the lungs, in all complaints of the breast, in dropsies, in plethoric habits, and for very corpulent individuals; in all which cases the lukewarm bath may, if duly modified, produce effects highly beneficial.

remedy ;—its effects are not so much calculated for the healthy and robust, as for the infirm and diseased, under peculiar circumstances. The external use of cold water is of singular benefit, when applied to particular parts of the body, where its use may be much longer continued without danger, and where we may accomplish the intended effects, in a manner, by compulsion and perseverance.

Of all the parts of the body, the head receives most benefit from the affusion of cold water ; this is a simple and effectual remedy against too great an impulse of the blood towards the head, where persons are threatened with apoplexy ; in disorders of the brain and cranium ; in wounds and other complaints, to which the head is subject. In these instances, its effects may be still farther improved by frigorific or cooling salts. The affusion of water upon the abdomen has likewise been employed with great advantage, in cases of obstinate costiveness, affording almost instantaneous relief, when internal remedies have produced no effect. This should not, however, induce any person to try that remedy indiscriminately, or without proper advice.

On the contrary, in all those cases where the cold bath might repel certain eruptive humours, which Nature determines towards the surface of the body, it cannot be resorted to without danger. Apoplexies have been the frequent consequences of an unwary use of the cold bath ; more frequent, indeed, than is generally suspected. And yet the popular opinion still prevalent, is, that there can be no

better practice, than to plunge into the cold bath at all times, and in all ſtates of the body, in order to ſtrengthen the nerves. Children, in particular, are indiſcriminately accuſtomed to it from their infancy, to reſtore them to that degree of bodily vigour, for which our anceſtors were ſo famed. That many children, by the daily practice of bathing them in cold water, grow and continue healthy and ſtrong, proves as little, as that many infants become vigorous and robuſt in the moſt unwholeſome climates, and under the moſt unfavourable management.—Some think to fortify the body, by the uſe of the cold bath, againſt the viciſſitudes of the weather; but it can be proved that children, who from their infancy have been bathed in cold water, are as much expoſed to coughs and catarrhs, as thoſe who have not been habituated to this violent practice, provided they have not been miſmanaged by effeminating indulgence. In general, all artificial plans of hardening and bracing the bodies of children, are commendable only, when the child ſhows no ſtrong and laſting averſion to them.

It ſhould be conſidered that, as the cold bath powerfully contracts the fibres by its frequent uſe, it imparts to the juvenile body an unnatural degree of ſolidity and compactneſs, whereby it too early acquires the properties of an adult. The ſkin of ſuch children as have been too frequently bathed, is generally much drier and harder than it ought to be at their age. It is a remark of GALEN, that the cold bath does not agree with a growing per-

ſon, and he adviſes young people not to bathe at all till the body be completely formed. Is it not inconſiſtent, that by cold bathing we expect to bring the body of youth to the vigour of age, and that afterwards, when age approaches, we ſhould wiſh to render it ſofter, and reſtore its energy, by lukewarm bathing? Hence the cold bath, for the purpoſe of ſtrengthening children, muſt ever be conſidered as a doubtful remedy.

We now proceed to lay down ſome rules for the uſe of the cold bath, in the caſes where it may be of ſervice. 1ſt, Every cold bath applied to the whole body ought to be of ſhort duration; all depends upon the firſt impreſſion the cold makes on the ſkin and nerves, it being this impreſſion which hardens us againſt the effects of rough and cold weather:—2d, The head ſhould be always firſt wetted, either by immerſion, or by pouring water upon it, or the application of wet cloths, and then plunging over head into the bath:—3d, The immerſion ought always to be ſudden, not only becauſe it is leſs felt than when we enter the bath ſlowly and timorouſly, but likewiſe becauſe the effect of the firſt impreſſion is uniform all over the body, and the blood in this manner is not driven from the lower to the upper parts. Hence the Shower Bath poſſeſſes great advantages, as it pours the water ſuddenly upon the whole body, and thus in the moſt perfect manner fulfils the three rules above ſpecified:—4th, The due temperature of the cold bath can be aſcertained only in relation to individual caſes: as it

extends from 33 to 56° of Fahrenheit, except in *partial* bathings, where, as has been already observed, the degree of cold may, and often ought to be, increased by ice, nitre, alum, salt, sal ammoniac, or other artificial means :—5th, Gentle exercise ought to precede the cold bath, to produce some reaction of the vascular system in entering into it ; for neither complete rest nor violent exercise are proper, previous to the use of this remedy :—6th, The morning or forenoon is the most proper time for cold bathing, unless it be in a river,—then the afternoon, or towards the evening, when the water has been warmed by the sun, and the dinner has been digested, are the most eligible periods of the day. A light breakfast will not be detrimental before using the bath : —7th, While in the water, we should not remain inactive, but move about, in order to promote the circulation of the blood from the centre of the body to the extremities :—8th, After immersion, the whole body ought to be wiped, as quickly as possible, with a dry and somewhat rough cloth. Moderate exercise out of doors, if convenient, is proper, and indeed necessary.

To specify the various situations, in which the cold bath may be used with perfect safety and advantage, would lead me too far, and does not belong, strictly speaking, to the subject of this book. I shall, however, enumerate generally certain cases, in which we must absolutely refrain from the cold bath. 1. In a general plethora or full habit of body, and in the febrile disposition which attends it ; in re-

merrhages or fluxes of blood, and in every kind of inflammation. 2. In conſtipations or obſtructions of the abdominal inteſtines. 3. In diſeaſes of the breaſt, difficult breathing, and ſhort and dry coughs. 4. In an acrimonious ſtate of the fluids, bad colour of the face, difficult healing of the fleſh, and the ſcurvy, properly ſo called. 5. In gouty and rheumatic paroxyſms. 6. In cutaneous diſeaſes. 7. In a ſtate of pregnancy. And laſtly, 8. In a deformed or ill-ſhaped ſtate of the body, except in ſome particular caſes to be determined by a phyſician.

The beſt method of cold bathing is in the ſea or a river. Where, from neceſſity, it is done in the houſe, I recommend the *Shower Bath*, for which a proper apparatus is to be had at the tinman's. Where the ſaving of expenſe is an object, it may be effectually ſupplied by the following eaſy expedient: Fill a common watering-pot with cold water; let the patient ſit down undreſſed upon a ſtool, which may be placed in a large tub; and let the hair, if not cut ſhort, be ſpread over the ſhoulders as looſely as poſſible; then pour the water from the pot over the patient's head, face, neck, ſhoulders, and all parts of the body progreſſively down to the feet, till the whole has been thoroughly bathed. Let the patient then be rubbed dry, and take gentle exerciſe, as has been already recommended, until the ſenſation of cold be ſucceeded by a gentle glow all over him. When we firſt reſort to this kind of bath, it may be uſed gently, and with water having ſome degree of warmth,

ſo as not to make the ſhock too great; but, as the patient becomes accuſtomed to it, the degree of cold may be increaſed, the water may be allowed to fall from a greater height, and the holes in the pan may be made larger, ſo as to make the ſhower heavier. A large ſponge may, in ſome meaſure, be ſubſtituted for a watering-pot.

Although the Shower Bath does not cover the ſurface of the body ſo univerſally as the uſual cold baths, this circumſtance is rather favourable than otherwiſe: for thoſe parts, which the water has not touched, feel the impreſſion by ſympathy, as much as thoſe in actual contact with it. Every drop of water becomes a partial cold bath in miniature, and thus a ſtronger impreſſion is excited than in any other mode of bathing. The Shower Bath, for the following reaſons, poſſeſſes advantages ſuperior to all others. 1. The ſudden contact of the water, which in the common bath is only momentary, may here be prolonged, repeated, and made ſlow or quick, or modified at pleaſure. 2. The head and breaſt, which are expoſed to ſome inconvenience and danger in the common bath, are here at once ſecured, by receiving the firſt ſhock of the water; the blood is conſequently impelled to the lower parts of the body; and the patient finds no obſtruction in breathing, or undulations of blood towards the head. 3. The heavy preſſure on the body occaſioned by the weight of the water, and the free circulation of the blood in the parts touched by it, being, for ſome time at leaſt, interrupted,

make the usual way of bathing often more detrimental than useful. The Shower Bath, on the contrary, descends in single drops, which are at once more stimulating and pleasant than the immersion into cold water, and it can be more readily procured, and more easily modified and adapted to the circumstances of the patient.

I shall conclude this Chapter with some account of what is called the *Aërial* or *Air Bath*. This is a late invention, the effects of which have not yet been sufficiently ascertained. Experience informs us, that by exposing the naked body for a short time to an agreeable cool, nay to a cold air, we perceive effects somewhat similar to those produced by the cold bath; particularly that of a pleasant sensation of heat diffused over the whole body, after having again dressed. There is little danger of catching cold upon this occasion: for in a place where we already feel a certain degree of cold in our usual dress, the sensation of it will not be much increased, if we undress altogether. It may also be remarked, that with the *whole* body naked, we have much less to apprehend from the effects of cold, than by exposing or keeping one part of it less covered than another.*

* *Lord Monboddo*, the author of "*Ancient Metaphysics*," who died in May 1799, in his 90th year, till very lately accustomed himself to take violent exercise, when quite undressed, in the open air. He also anointed his body, like the ancients, with aromatic oils, especially in certain states of the atmosphere: in the severest weather he never would enter a carriage, which he looked upon as an unjustifiable effeminacy; but annually rode from Edinburgh to London, and took other long journeys on horseback. And this venerable judge and amiable man found himself, long after the age of 70, as hale, and in many respects as vigorous, as he had been at 30 or 40.

This ſpecies of bath certainly deſerves farther trials. A ſpacious apartment, with open windows, may ſerve every purpoſe of moving in the free air. And here I would recommend to all who are engaged in ſedentary and literary purſuits, to walk with their heads uncovered in an open, and even in the coldeſt air, as being a ſimple and excellent means to ſtrengthen the head, and to remove thoſe complaints which ariſe from intenſe thought and cloſe mental application.

To rub the body with woollen cloths, or with ſoft bruſhes, is of great advantage, by gently ſtimulating the fibres, increaſing the circulation of the fluids to the external parts, and promoting a free perſpiration, together with all the other evacuations. Perſons of a delicate habit, of a ſedentary life, and thoſe who are liable to ſudden twitches of the tendons, cramps, and lameneſs, may effectually relieve, or rather prevent theſe complaints, by cauſing the whole body, particularly the limbs, to be rubbed every morning and evening, for about half an hour, with rough cloths or ſoft bruſhes, till the ſkin becomes red. This friction is ſtill more beneficial to the aged than to the young; and it may in a great meaſure produce the ſalutary effects of bodily exerciſe.

Frequent cutting the hair is of advantage to the eyes, the ears, and to the whole body. So the daily waſhing of the head with cold water, is an excellent remedy againſt periodical head-achs. In coryzas, or defluxions of the humours from the head, and in weak eyes,

the ſhaving of the head often affords immediate relief; while at the ſame time it opens the pores, and promotes perſpiration. It is altogether a miſtaken idea, that there is a danger of catching cold from the practice of waſhing the head, or leaving it expoſed to the free air, after having been waſhed. The more frequently the ſurface is cleanſed of ſcurvy and ſcaly impurities, the more eaſy and comfortable we feel. The oftener the hair is cut, the more quickly it grows again; and this eaſy operation ſupplies the place of a conſtant bliſter or artificial iſſue.*

Friction of the ſoles of the feet is very advantageous; but, on account of the great number of highly ſenſible nerves in them, ſuch practice muſt not be carried to exceſs. A proper degree of warmth and perſpiration in the feet is always a favourable ſymptom of health. Beſides, they ſhould often be bathed in cold, or, ſtill better, in lukewarm water, well rubbed, and the nails cautiouſly cut. There will then be no danger of the nails growing into the fleſh, or of corns or other calloſities ariſing in the feet. All the methods hitherto diſcovered of extracting corns, afford only

* All ſecret compoſitions or pomatums for making the hair grow long and thick, are little better than fraud and impoſition, and generally conſiſt of noxious ingredients. In place of them, I recommend a ſimple mixture of olive oil and ſpirits of roſemary; to which may be added, a few drops of oil of nutmeg. With this mixture let the hair be anointed every night; but ſparingly at firſt.

To change the hair to a darker colour, the liquid remedies ſold by the perfumers are generally dangerous, as conſiſting of lead, antimony, and other metallic ſolutions. The only method to be purſued with ſafety is, to cut the hair pretty cloſe to the head, and comb it morning and evening with a leaden comb, which ſimple proceſs cannot injure or check the perſpiration of the head.

temporary eaſe; and it is very dangerous to cut them too deep, on account of the many nerves running in every direction of the toes. Eaſy ſhoes, frequent bathing the feet in luke-warm water, with a little ſalt and pot-aſhes diſſolved in it, and a plaſter made of equal parts of Gum Galbanum, Saffron, and Camphor, are the only remedies I can recommend againſt this troubleſome complaint.

CHAP. IV.

Of DRESS;—*the advantages and disadvantages of the usual mode of Clothing considered, together with proposals for remedying its defects.*

IN considering the various articles of Dress, attention must be paid both to their *substance* and *form*. Our mode of clothing may occasion trouble, disease, and death—1. When we attempt by it to improve some supposed defects of the body, which cannot be done without injury; and, 2. When it consists of improper substances, whether used from necessity, or in compliance with fashion and caprice.

To avoid ridicule, we comply with the prevailing fashions of the day; but, if this compliance be prejudical to health, it shows great weakness to allow ourselves to be carried away with the stream; and although a deviation from the mode may, for the moment, excite the ridicule of the thoughtless, yet those who have the boldness to oppose the Tyrant, when his dictatorial mandates are injurious to health, will in the end triumph, and they may themselves have the satisfaction to introduce dresses, at once healthful and elegant. Happily, in this respect, people begin in some degree to think for themselves; that rigid adherence to the mode, which heretofore dressed both men and women as much in uniform suits as a regiment of soldiers, does not now disgust us.

The general properties of a good dreſs are the three following :—1. That it be not ſo hard and unpliable, as to obſtruct the free and eaſy motion of the joints, and be uncomfortable, either from its weight or tightneſs :—2. That it preſerve the body in that degree of temperature which is moſt agreeable, as well as moſt ſuitable to the different functions and motions in a healthy ſtate ;—and, 3. That it do not produce any detrimental effects, by increaſing perſpiration in an unneceſſary degree, or too much abſorbing the vapours of the atmoſphere.

On the Materials uſed for Articles of Dreſs.

The property of receiving, repelling, and emitting heat and cold, depends not only on the ſubſtance from which our dreſs is made, and its ſhape or form, but alſo on the colour. Clothes of a light colour have the leaſt attraction for heat, and therefore are the moſt proper in hot weather. Subſtances of a very ſmooth and ſhining ſurface ſtrongly reflect the rays of the ſun, which cannot penetrate through them ; hence the advantage, in hot climates, of hats covered with oil-ſkin, particularly of a green or white colour, of ſmooth and ſhining ſhoes, glazed gowns, and the like. Dazzling colours are offenſive, and a perſon who ſuffers from weak eyes will injure them ſtill more by wearing crimſon or ſcarlet, or being much in company with others thus dreſſed. For a ſimilar reaſon, ſplendid white

dreſſes, ſteel buttons, gold and ſilver lace, and all ornaments of this ſort, are detrimental to viſion.

Animal Wool produces a moderate warmth, on account of the ſtimulus and gentle friction it occaſions on the ſkin. By its uſe, animal electricity is elicited, perſpiration promoted, the perſpired humours are abſorbed, and again eaſily evaporated, on account of the porous nature of this ſubſtance.

Linen Cloth, by diminiſhing the elaſticity of the ſkin, increaſes the internal warmth, and at the ſame time, from its compactneſs, retains too readily the perſpirable humours, and does not part with them ſo readily as wool. Soiled ſhirts therefore produce a diſagreeable cooling ſenſation, and ſtop perſpiration, eſpecially if made of thick ſtrong cloth, and not regularly changed every day.

Silk occaſions a gentle ſtimulus, but does not ſufficiently promote perſpiration, though it attracts leſs humidity from the atmoſphere than linen.

Oil-ſkin, or wax-cloth, increaſes perſpiration in an uncommon degree, but does not admit it to evaporate again, and is therefore applicable only in certain diſeaſes.

Cotton ſtands in the middle between animal wool and linen; it increaſes warmth and perſpiration, imbibes and retains the perſpired humours, to the injury of the wearer, and like wool readily attracts infectious matter.

All kinds of *Fur* are more noxious than uſeful, both with reſpect to their ſtructure and conſtituent parts. They contain many alka-

line and oily particles; they are generally too compact and unequal on the surface; they too much stimulate and increase perspiration, by promoting the access of humours to the skin; they do not allow the perspirable matter to escape, soon acquire an intolerable smell, and, more than any other substance, attract and retain contagious effluvia. Experience informs us, that nations who dress in fur, particularly in hot countries, are frequently exposed to diseases, owing to a want of cleanliness and free perspiration; such are the putrid fevers of Hungary, the plague among the Turks, and the singular disease of the hair in Poland, called *plica polonica*, which curls the whole hair into a number of twists, that have the appearance of so many greasy strings, and afford a ghastly spectacle.

We ought, therefore, to choose a dress agreeable to the season and weather, as well as to the constitution of the body. Woollen clothes are the most proper in spring, autumn, and winter; because they moderately warm the body, do not weaken it by the abstraction of too many exhalations, and have the fewest points of contact, or, in other words, do not attach so close to the body, as any other materials of dress.

In summer, most people are accustomed to wear thin clothes, which are scarcely proper in our changeable climate. It is not, in that season, advisable to take much exercise in thin dresses, particularly in the heat of the day. Nor should we venture to wear such clothes early in the morning, when the air is cool,

and the pores of the skin have been dilated by the warmth of the bed ;—but still less in the evening, when the heat of the day has so much opened them, that perspiration may be easily checked, and health materially injured.

In our variable climate, it would be preferable to adopt a species of dress, which is nearly uniform in all seasons ; for as thin clothes are more immediately pervaded by heat, during the least exercise, it certainly would be more prudent and rational to wear a dress that is calculated to withstand the effects both of cold and heat. That there is no danger in adopting a general dress for all seasons ; that, on the contrary, it is the most beneficial plan of managing the body, with regard to the most important function, namely, that of perspiration, I shall endeavour to prove in the next Section.

On the immediate Covering of the Skin.

The first and principal rule with respect to this subject is, that *the covering of the skin ought to be always the same, and not be changed according to the season and the weather.* The usual consequence of this change is, in the first place, an uneasy and painful sensation. A skin accustomed to fine linen only, cannot endure the sensation occasioned by a coarser kind ; and cotton is still more disagreeable, but, most of all, animal wool or flannel. In the next place, to change the dress according to the weather,

occupies more time, and requires more expenſe, than is convenient to the great maſs of the people.

Nevertheleſs, there are many who, from miſtaken maxims of health, accommodate the covering of their ſkins to the ſeaſons: they dreſs themſelves in winter in flannel, towards ſpring and autumn in cotton, and in ſummer in linen; a method as abſurd as it is dangerous. Notwithſtanding the difficulties, which each of theſe changes muſt produce, while we undergo this new trial on our ſkin, we expoſe ourſelves at the ſame time, in every ſuch change, to all poſſible dangers ariſing from cold and repelled perſpiration. This cuſtom is the more dangerous, as it is uſually practiſed by the infirm, the tender, and the aged, who regulate themſelves leſs by the temperature of the weather, than by the days of the almanack, when they are periodically accuſtomed to change their dreſſes.

The queſtion, then, which is the *moſt proper covering of the ſkin*, is eaſily anſwered. *Animal wool* ſeems to recommend itſelf to us by the very circumſtance, that hair is the general covering of thoſe animals which moſt reſemble man in their ſtructure. If men were habituated to go naked in the colder climates, the human body would, no doubt, alſo be better covered with hair. Animals, in winter as well as in ſummer, have the ſame coat, except that in the coldeſt ſeaſon their hair is uniformly ſomewhat thicker and longer, conſequently alſo warmer than in ſummer, eſpecially in the northern countries.

Not only analogy, but experience alſo proves, that wool worn next the ſkin has indiſputable advantages over all other ſubſtances. For, 1. Flannel is but a ſlow conductor of *external* heat to the body, and it the more eaſily attracts *internal* heat, and allows it to evaporate the more readily, as it is more porous than any other texture. 2. A ſultry atmoſphere is extremely troubleſome, particularly where great heat is combined with moiſture, the humidity checking perſpiration, and at the ſame time conducting too many aqueous particles to the abſorbent veſſels from without. Here then flannel is of incomparable ſervice, ſince it keeps the veſſels of the ſkin conſtantly open, cauſes them to perſpire freely, and admits but a very ſmall degree of external moiſture.

The principal good effect of flannel, however, conſiſts in its gentle and beneficial ſtimulus, or that friction which it occaſions on the ſkin, and by which it opens the pores. We muſt not imagine, that flannel *of itſelf* heats more than linen or cotton; for it is not the heat which occaſions inconvenience, but the circumſtance of the perſpirable matter adhering to the ſkin. In flannel, we may perſpire without danger, and undertake any exerciſe of the body, without diſagreeable ſenſations; not ſo, when linen remains wet on the ſkin. If we take violent exerciſe in flannel, perſpiration is neceſſarily increaſed, but the perſpired matter is communicated through the flannel to the atmoſphere, and the ſkin remains dry, warm, and comfortable. If we take the ſame exerciſe in linen ſhirts, perſpiration is

indeed alſo increaſed, but the perſpired matter is not imparted to the atmoſphere, but is inſpiſſated in a fluid ſtate, clogs the linen, and remains in contact with the ſkin.

Another advantage which flannel poſſeſſes over linen and cotton is, that people perſpiring profuſely in flannel ſhirts, may ſafely venture into the open air, and will not eaſily catch cold, becauſe flannel does not abſorb the perſpired humours. If we do the ſame in linen ſhirts, the ſkin will ſoon be wetted by perſpiration, which will occaſion a ſenſation of coolneſs and ſhivering; in moſt caſes a violent cold, and very frequently an inflammation of the lungs, will be the conſequence. This danger ariſes from the fluid matter ſettling on the ſkin; and we may be ſtill more ſeverely injured, if we at the ſame time expoſe ourſelves to the action of the wind, or a current of air.

Numberleſs writers, both ancient and modern, confirm the good effects of flannel next the ſkin: of theſe I ſhall only quote COUNT RUMFORD, who ſays, in one of his earlier Eſſays, that he is convinced of the utility of flannel ſhirts in all ſeaſons; that he has worn them in all climates, in the warmeſt apartments, and in the moſt fatiguing exerciſe, without the leaſt difficulty; that he was relieved, by the uſe of flannel, from a pain in his breaſt he had been frequently ſubject to, and never ſince knew an hour's illneſs; and that nothing exceeds the agreeable ſenſation of this dreſs, when people have been once accuſtomed to it.

Indeed after the praiſes beſtowed upon flannel, by ſo many reſpectable authorities, and by men who from long experience have aſcertained its beneficial effects, it is ſurpriſing that any individual, however great his reputation, ſhould be whimſical or hardy enough to diſpute its *general* ſalubrity, merely with a view to eſtabliſh a favourite hypotheſis.

It has been objected, that flannel worn next the ſkin is debilitating, becauſe it too much increaſes perſpiration; but this is not founded on truth, ſince perſpiration, *as long as the ſkin remains dry*, never can be hurtful, nor immoderate. Such miſtaken notions have been propagated, from the circumſtance, that flannel is frequently ordered by phyſicians, to increaſe perſpiration in ſome diſeaſes, where it is neceſſary to the recovery of the patient: *but the copious perſpiration is then the effect of the diſeaſe, and not of the flannel.*

The uneaſy ſenſation occaſioned by flannel is of very ſhort duration. That it may make the ſkin red and inflamed, if it be too much rubbed and ſcratched, cannot be denied; but it is a palpable falſity that it produces cutaneous eruptions. It has quite a contrary effect; as it preſerves the pores open, increaſes perſpiration, and thus removes the cauſe of cutaneous diſeaſes, which ariſe chiefly from a checked and irregular ſtate of excretion by the pores.

In anſwer to another objection againſt the wearing of flannel, it is certain, that a flannel ſhirt or waiſtcoat may preſerve the body as

clean, and much cleaner, than linen, *if as frequently changed.**

Wool, on account of its rough surface, is more calculated to absorb infectious morbid matter, than a more smooth substance; but we have nothing to apprehend from flannel on the skin, and under the usual dress. I am rather of opinion, that it is a better preventive against contagion than any other; because, while it encourages perspiration, it at the same

* This preliminary condition, I presume, sufficiently answers the objection of a learned writer, according to whom a flannel dress requires a more frequent change than linen, *to promote cleanliness*, and consequently would produce a contrary effect among the lower classes of people. Yet, in other respects, I fully agree with the celebrated HUFELAND, who lays down the following conditions and limitations in what relates to the use of flannel:—"Upon the whole, says he, I am of opinion that it would not be advisable, at least to children and young persons, *universally* to adopt a woollen texture for the covering of the skin. It is, however, a *salutary* dress to those who, in all probability, have commenced the second half of their life; to all cold or phlegmatic temperaments; to all who lead a sedentary life; to individuals subject to catarrhs, or frequent colds, gout, diarrhœa, and partial congestions of the blood; to all nervous patients and convalescents from severe chronic disorders; to persons who are too susceptible of the impressions of the atmosphere; and, lastly, in such climates and pursuits of life as are exposed to frequent and sudden changes of air.—It is, on the contrary, *hurtful* to all those, without exception, who are already subject to violent perspiration, or troubled with cutaneous eruptions, and who cannot afford to change their under dress as often as is consistent with cleanliness."

Professor Hufeland, doubtless, meant to say that the wearing of flannel next the skin is *then only hurtful*, if none of the conditions before specified reconcile its use; for, even in cases apparently doubtful, the temporary wearing of flannel is not attended with such danger as might perhaps result from neglecting its application. But although it be obviously conducive to health, the Professor recommends only such a texture of wool, as is sufficiently porous, and neither too rough nor too thick. Coarse woollen stockings in winter, and thin ones in summer, ought in his opinion to be more generally worn. Those persons, lastly, who are in a good state of health, and have no particular reason for wearing flannel, or whose skin is too irritable, may find it, he thinks, beneficial to wear a cloth fabricated of a mixed texture of cotton and linen.

Medical and Physical Journal: No. I. p. 40 and 41.

time removes the inhaled poiſonous particles, particularly if, in caſes of danger, perſpiration be increaſed by other ſuitable means. Hence people wearing flannel on their ſkin, never ſuffer from cold. I have been informed, that the manufacturers in the different founderies of Birmingham, as well as at the iron-works of Colebrook-Dale and Kettley, in the moſt intenſe heat, wear no other but flannel ſhirts; and that without theſe it would be impoſſible to prevent continual colds, and the moſt fatal diſeaſes. With this beneficent intention, the Britiſh ſoldiers upon the Continent, ſome years ago, were furniſhed with flannel waiſtcoats, by the liberal ſubſcriptions of individuals, which, I am convinced, ſaved many lives that muſt otherwiſe have fallen victims to the effects of a cold and moiſt climate.

Theſe advantages ſtrongly recommend the uſe of flannel to every one anxious to preſerve his health, but particularly to thoſe who are expoſed to all kinds of weather, as huſbandmen, fiſhermen, mariners, ſoldiers, and travellers. As flannel is ſuitable to all ſeaſons; as it requires no great changes in the under dreſs; and as it is a tolerable ſubſtitute for a deficiency of upper dreſs; it deſerves every attention among thoſe who provide for orphan and poor-houſes, as well as for the indigent of every deſcription. Many deſperate diſeaſes in the legs of the common people, many inflammations of the throat, breaſt and lungs, might be prevented, and many lives ſaved, both of children and adults, if flannel were more generally worn.

Thoſe who complain of cold legs and feet, are never comfortable nor healthy; if they could be prevailed upon to wear worſted ſtockings and flannel drawers, they would acquire a quicker circulation of the blood in the lower extremities, and prevent many troubles and indiſpoſitions, from which, without this precaution, they cannot eſcape. Moſt valetudinarians and patients ſlight this advice, becauſe they imagine that the wearing of flannel is attended with uneaſy ſenſations. This idea, however, ought not to prevent them from giving it a fair trial; for the uncomfortable feeling continues only for a few days, as I have myſelf experienced; and this trifling ſacrifice cannot be compared with the ſalutary effects, which flannel next the ſkin almoſt uniformly produces. By continuing it ſufficiently long, and changing it frequently, the moſt obſtinate gouty and rheumatic complaints have often been removed, and many other imminent dangers averted. Children afflicted with rickets, cannot be better relieved than by a proper diet, and flannel ſhirts, which may be daily fumigated with amber, petroleum, or other fragrant ſubſtances; a proceſs, which has been frequently productive of the moſt beneficial effects.

Of Stockings.

Cotton ſtockings, which are ſo generally worn at preſent, are highly objectionable.—

There is no part of the human frame, which perſpires ſo much as the feet. The diſagreeable ſenſation cold feet produce is well known; for the connexion between the feet and head, the ſtomach, the uterus, and many other important parts of the human ſyſtem, is ſo intimate, that gout, ſuppreſſion of the critical evacuations, pain in the excretory organs, nay cancer, inflammation of the uterus, and abortion, may be the conſequence of cold feet and legs, which are the neceſſary effects of wearing cotton and ſilk ſtockings. Cotton and linen worn next the ſkin, if once filled with perſpirable matter, do not admit any more to paſs through them; a glutinous and cooling moiſture accumulates, and it is not eaſy to keep the feet thoroughly clean in this dreſs. Thoſe who alternately wear cotton and worſted ſtockings, muſt ſoon obſerve the difference in the exhalation and moiſture peculiar to each. Cotton, though ſomewhat better than linen, is ſtill much inferior to wool, which is alone calculated to abſorb and exhale the noxious humours emitted by the pores.

The reciprocal effect of the perſpiration of the feet, and of the leather of the ſhoes, is greater than is commonly believed. Hence thoſe, who wear cotton ſtockings, ought, from reſpect to cleanlineſs, as well as health, to change them according as their exerciſe increaſes perſpiration.

Although the feet are the principal ſources or conductors of exhalation from the body, little attention has been paid to them, with a

view of promoting this ſalutary ſecretion. Inſtead of profiting by this hint of nature, mankind have been imprudently and unaccountably ſtudious to ſtop that canal; imagining this to be the ſafeſt way of preſerving the feet dry, and free from all diſagreeable ſmell. Dry feet are certainly preferable to moiſt: but the means of promoting perſpiration are alſo the only means capable of keeping the feet dry, and free from any unpleaſant fetor. It is alſo improper and unhealthy to wear any other but woollen gloves, which ought to be worn by all females, who wiſh to improve the ſkin of their hands and arms; no coſmetics or waſhes are ſo certain and ſo powerful in their effects: on the contrary, all external applications, unleſs aſſiſted by internal remedies, are attended with the poſitive ruin of ſkin, bloom, and health.

Perſons who have a great tendency to perſpire in their feet, and who increaſe this exudation by much walking or dancing, will no doubt be ſenſible, that their cotton, thread, or ſilk ſtockings, inſtead of removing the tranſpired matter, actually abſorb it; bring it in contact with the ſkin; preſerve it in a ſtate of heat favourable to putrefaction; and check all farther perſpiration.

That the feet are more expoſed to the effects of cold, and to ſtagnations of the fluids, than any other part of the body, is unqueſtionable: 1ſt, becauſe they are the moſt remote parts from the heart, and the quickneſs of the circulation of the blood decreaſes in proportion to that diſtance; and 2d, the

blood circulating downwards makes its way to the heart ſomewhat ſlower, on account of its own gravity. By this ſlowneſs in the circulation, more watery particles are depoſited by the blood. It is therefore neceſſary to keep the feet ſomewhat warmer than the reſt of the body, in order to encourage the motion of the fluids to the upper parts. Woollen ſtockings are excellently adapted for that purpoſe, and they ought to be choſen rather thicker than thoſe flannels uſed for ſhirts and drawers. For the ſame reaſon, it is proper to prevent all moiſture from without, by means of water-proof ſhoes, provided with thick cork ſoles for the winter, or with elaſtic ſocks of horſe-hair.

The moſt diſagreeable ſenſation produced by the feet in perſpiring, is between the toes: this can only be prevented by wearing ſtockings made with toes, like the fingers of gloves; becauſe theſe alone can abſorb and prevent the viſcid and fetid particles from ſettling there. But as this propoſal is not likely to meet with the approbation of the votaries of faſhion, I ſhall ſubſtitute an eaſier method of remedying the unpleaſant effects of violent perſpiration in the feet. A powder of burnt alum will overcome this fetor, by neutralizing the acrid particles; and, at the ſame time, will not obſtruct the neceſſary perſpiration.

Of Dreſs, as to its Form.

All coverings of the head, of whatever kind, produce more miſchief than benefit.

The well known and excellent rule of keeping the head cool and the feet warm, is too much neglected, especially by the lower classes of the people in many countries, as in Scotland, Holland, and Germany, and likewise among people of a certain age and description in this country. The Scotch peasant wears his heavy bonnet, the Dutchman his cap, and the Turk his turban, without considering that such heavy loads are stupifying, and that, while no attention is paid to keep their feet warm and dry, their heads are virtually converted into vapor-baths. In all countries, the man who lives at his ease, carefully covers his head with a warm night-cap; he spends perhaps one half of the day in this unnatural dress, and prepares his head for frequent colds, at every sudden change in the atmosphere. Besides, weakness of the head, pains, eruptions, local plethora or fulness of blood, loss of the hair, lethargy, and at length stupor or insanity are often the effects of this imprudence.*

In our moderate climate, we might safely accustom our youth to go with the head uncovered; as Nature has already provided it with hair for that purpose. In very cold and hot countries, however, the head must be

* For some years the ladies, instead of those horrid masses of frizzled hair, which used at once to injure their health, and disfigure their faces, happily returned to beautiful and elegant nature; having their hair hanging down in graceful ringlets, while the only artificial covering was a simple turban, or an ornamental bandeau. Of late, however, this tasteful style of decoration has been succeeded by unnatural, disgusting, and unhealthful *wigs*; a fashion probably introduced by some ugly and bald woman, to reduce her gay and beautiful imitators to her own standard of deformity.

lightly covered, to shelter it from cold, or from the still more dangerous vertical rays of the sun.

It is an instance of improvement in the education of children in England, that their tender heads are not so much shut up in close caps, and fur bonnets, as those upon the Continent. A practice so injudicious and hurtful deserves no imitation; and yet there are advocates for *warm* night-caps and wigs; they would starve their feet, while the head is enclosed in an artificial stove, which enfeebles their mental faculties, and diminishes their bodily vigour.

New-born children, and those who are most tender, require only an easy and moderately warm covering for the head, and this chiefly during the first weeks, on account of the softness of their cranium, then but imperfectly ossified. Yet such a cap should be loosely tied, that it may not press the head, nor cripple the muscles of the ears.

That the ear is naturally capable of some motion, is proved by the muscles with which it is provided. Its form, resembling a shell, is admirably adapted to receive and convey sound. In the vain conceit, that a projecting ear, so as the Author of nature has created it, is a deformity, nurses and overwise matrons endeavour to press the child's ear, from its first appearance, close to the head. Thus they render the shell of the ear immovable, and diminish the capacity of hearing. A properly-expanded ear not only strengthens the acuteness of hearing, but likewise preserves this

useful sense to a great age, when the muscles of the internal organs of hearing become relaxed.

To go with the head uncovered, in sunshine, is certainly improper, both for children and adults; but our common black hats are ill calculated to avert the mischief, as they do not reflect the heat, but rather concentrate it in the most sensible manner upon the head. Hats of a white, or any other light colour, made of straw or similar light materials, would be far preferable, particularly for people labouring in the fields, soldiers, and travellers. In very hot weather, a piece of white paper may be fastened with advantage on the crown of the hat.

As the hat ought likewise to shelter the eyes from too vivid a light, the brim should be broad enough to protect them, and the inner side of a green or blue, but not of a black, nor a dazzling colour. From the present mode, however, it appears that both ladies and gentlemen think a brim almost, if not altogether unnecessary, even when the power of the sun is most oppressive.

Persons suffering from periodical head-achs, or whose heads are otherwise unhealthy, should have their hair cut short. By this petty sacrifice, they will promote the necessary perspiration, the head will remain cool, and the cold bathing of it can be practised with more advantage. In this point of view, wigs cannot be *altogether* condemned, as long as hair-dressing, artificial braids, and other ornaments, form an essential part of fashionable

dreſs. Beſides, the wearers of wigs are, in a great meaſure, exempt from many inconveniences and evils attending the uſe of powder and pomatum. Laſtly, if we muſt chooſe one of the two maladies of the times, it is moſt rational to adopt the leaſt noxious to health: and ſo far I think a *light wig* is juſtly preferable to a head enveloped in an artificial paſte of powder and pomatum. Thoſe, however, who are once accuſtomed to wear a wig, ſhould not upon any account again let their hair grow in order to have it dreſſed, paſted, and powdered anew.

With reſpect to *Shirts*, the moſt proper ſubſtance having been before inveſtigated, I ſhall only add, as to their form—that they may be ſeriouſly prejudicial to health, if too narrow in the collar, and in the wriſtbands. I have ſeen ſeveral inſtances of people attacked with ſhortneſs of breath and difficulty of ſpeech, from this reaſon only, becauſe the blood cannot circulate freely, if the neck and wriſts be tied or buttoned up too cloſely. I was once preſent where a young man, playing at rackets, was ſuddenly ſeized with an apoplectic fit, the cauſe of which ſeemed at firſt inexplicable. As ſoon, however, as his ſhirt-collar, wriſtbands and garters were looſened, he recovered.

Neckcloths, cravats, ribands, and necklaces of all ſorts, *when they are too tight*, ſtop the acceſs and retreat of the blood to and from the head, occaſion accumulations of the blood and other fluids, head-achs, faintings, ſtupor, apoplexy, corroſive ulcers of the ſkin,

and innumerable other maladies. All coverings of the neck ought therefore to be conſtantly worn looſe. People who are liable to ſore throats, and diſeaſes of the breaſt, might gradually accuſtom themſelves, in mild and dry weather, to go with their necks as ſlightly covered as poſſible, and if faſhion would permit it, to have no other covering but the collar of the ſhirt. In cold and moiſt weather, a thin handkerchief might be added. But the modern cravats, filled with a ſtiffening of cotton or wool, are extremely injurious to the part which they are intended to protect. For, by occaſioning too great heat, they render the neck unnaturally ſenſible to every change of the atmoſphere. It is rather ſurpriſing, that from a due ſenſe of their perniciouſneſs, we have rejected all coverings of the neck in children, as being troubleſome and uſeleſs; and yet, in defiance of reaſon and experience, we continue to incumber our own necks with ſuch bandages.

Necklaces and ribands, likewiſe, are generally tied ſo cloſe, as to preſs with violence on that ſuppoſed deformity of the throat, vulgarly called the *Adam's apple*, which projects leſs in the female than in the male ſex. Theſe ribands and necklaces, when worn tight, are the more inconvenient and dangerous, if they be narrow and edged. Upon taking them off, which is too frequently neglected at night, they leave an impreſſion on the neck, clearly proving the impediment they are to free muſcular action, and what ſtagnations, pain, and dangerous conſequences they

may occaſion. The neck and throat, being alternately expanded and contracted, in ſpeaking, chewing, and ſwallowing, it is the higheſt degree of imprudence to obſtruct its motion, for the ſake of appearance, vanity, or faſhion.

Equally objectionable are thoſe black ſtocks, that were formerly much in faſhion, and are ſtill worn by ſome old beaux and military men. The latter indeed deſerve our compaſſion, from being obliged to wear theſe uncomfortable collars; but the former ought to conſider, that they expoſe themſelves to dangers, increaſing as they advance in age, and rendering them every day more liable to apoplexy. I knew a regiment of ſoldiers on the Continent, whoſe Colonel was ſo exceſſively fond of what he conſidered a martial appearance, that he cauſed his officers and men to have every article of their uniform remarkably tight, particularly the ſtocks, waiſtbands, and knee-garters. The conſequence was, that in the courſe of a few months above the half of his regiment became ſubject to very obſtinate cutaneous diſeaſes, and other obſtructions, ſo that they were unable to perform duty. Other regiments in the vicinity alſo ſuffered from this deſtructive cuſtom; but the proportion of their diſabled ſoldiers was like one to ten in the former. The late Dr. Fothergil aſſerts, that theſe tight ſtocks are productive of apoplexy, if a perſon look for ſome time, with his head turned, without moving his body. By this alone, he believes, people have brought on apoplectic ſymptoms.

For such a turn of the neck, when the body stands fixed, diminishes the diameter of the jugular veins so much, that a proportionate quantity of blood cannot return to them, from the vessels of the head and the brain.

Neckcloths or cravats, loosely tied, and not too thick, are therefore the only proper ones for *Men;* but as to *Women* and *Children*, it cannot be disputed, that they would be better without any.

Laced Stays are, among the better ranks of society, at present out of fashion; since the Grecian form is justly preferred to all artificial shapes. Yet, when we have adopted an useful habit ourselves, it is our duty to recommend it to those also who are still following a destructive practice. And with this intention I cannot but reluctantly observe, that nine tenths of the community still wear these oppressive *strait jackets*, merely because their mothers and grandmothers have done the same. I shall therefore briefly state a few of the consequences, arising from this unnatural part of female dress, namely, diseases of the breast, external callosities, and cancer itself; the ribs are compressed; the spine is bent out of its place; the free expansion of the lungs is prevented; hence shortness of breath, indurations and tubercles of the lungs, cramp of the stomach, defective digestion, nausea, irregularities in the secretory and other organs, and the like: in short, the list of the maladies thus produced is too long to be here detailed; and both married and unmarried ladies, for the sake of compassion, should ex-

ert all their influence, to convince the common people of the injuries occaſioned by ſtiff laced ſtays. If any ſuch part of dreſs be at all admiſſible, it ought to conſiſt of ſoft and pliable materials, ſuch as fine chamois leather, hatter's felt, or, what is ſtill better, the knitted and more elaſtic texture uſed for gloves and ſtockings.

All that has been ſaid, with regard to laced ſtays, is alſo applicable to ſmall waiſts, and tight coverings of the breaſt and the abdomen.*

Narrow ſleeves in gowns and coats, tight wriſtbands in ſhirts, and bracelets, occaſion a ſwelling of the veins on the back of the hand, rigidity, weakneſs of nerves, and incapacity of bending the arm. If the arms be in this manner twiſted from infancy, their growth and formation are impeded; and it is probably owing to this cauſe, that we ſee ſo many perſons with ſhort, thin, and ill-formed arms.

Women ſuffer much more by this bandage than men, whoſe arms poſſeſs more muſcular ſtrength, and have not the interſtices of the muſcles filled with fat, like the former. In this reſpect, the modern faſhion of tying the ſleeves of ladies' gowns cloſe to the elbow, deſerves particular cenſure; as the circulation of the blood, together with the motion of the

* Faſhion delights in extremes. No ſooner had the fair ſex abandoned the unnatural and unhealthful cuſtom of long taper waiſts, than they in a manner concealed the waiſt altogether. Inſtead of the cincture round the middle of the body, as nature and taſte directed, they bound themſelves over the breaſts,—a cuſtom not leſs prepoſterous than injurious to health.

arms, is thus obſtructed, and many diſagreeable conſequences wantonly induced. Farther, the female arm is naturally ſomewhat fuller from the ſhoulder downwards, and again becomes ſmaller towards the joints of the hand: but in man, it is always more muſcular a little below the elbow. From this difference in the ſtructure, it is obvious, that the ſleeves in a female dreſs lie cloſe to the whole arm, while thoſe of a man's coat but partially attach to it.

Many of the remarks already ſuggeſted, reſpecting the form and ſubſtance of other parts of dreſs, are likewiſe applicable to the article of *breeches*. If theſe be made of improper materials, or too tight in the waiſt-band, they muſt occaſion both uneaſineſs and injury to the body. Yet the ingenious obſervations, lately publiſhed on this ſubject by Dr. FAUST, an eminent phyſician in Germany, are by no means ſo concluſive, as to induce us to abandon an article of dreſs, not only rendered neceſſary by the laws of decorum, but which, when properly conſtructed, is even of conſiderable ſervice; inaſmuch as breeches, by their moderate preſſure, tend to ſtrengthen the relaxed parts of the body, particularly at a tender age.

The moſt proper form of this veſtment is, upon the whole, that of *pantaloons*; but they ought to be ſufficiently wide, of a thin cooling ſubſtance in ſummer, and of a warm elaſtic woollen cloth in winter. Tight and contracting leather breeches, purpoſely contrived to diſplay an elegant ſhape of the limbs,

are extremely inconvenient, occaſion numbneſs and chillineſs all over the hip and thigh, and a painful preſſure of the *pudenda*. Leather is alſo an improper ſubſtance for this part of dreſs; as, on account of its cloſe texture, it is apt to check inſenſible perſpiration. If the waiſtband be too ſtrait, the free motion of the internal parts of the abdomen will be obſtructed, the abſorbent veſſels of the inteſtines prevented from performing their offices, and hypochondriacal complaints be eaſily induced. This inconvenience may be entirely avoided, by the uſe of *braces*, now almoſt generally adopted, and which, as they render a tight cincture altogether unneceſſary, cannot be too much recommended, both to men and women, for the ſake of health as well as comfort.

There are many reaſons, which delicacy forbids me to mention, why it would be highly beneficial to the phyſical and moral condition of females, to wear ſome kind of drawers, at leaſt after a certain age. This additional piece of dreſs would effectually prevent ſeveral inconveniencies to which women are ſubject.—There are other circumſtances attending their uſual dreſs, which contribute to bring on a premature ſexual impulſe, and are apt to induce them to habits equally irregular and injurious to health. This hint cannot be miſunderſtood by judicious mothers, and, it is humbly preſumed, will not be totally diſregarded;—eſpecially as young females but too readily accuſtom themſelves to ſit in an improper poſture.

Concerning the clothing of the legs, I muſt in the firſt place cenſure the uſe of tight *garters*, particularly in men, to whom they are altogether unneceſſary. Whether females can do without them, is ſcarcely fair to queſtion: but if any ſubſtitute or contrivance can be adopted in their place, it will amply compenſate any little trouble or inconvenience: the ſtockings can eaſily be tied to ſome tape faſtened to the waiſtband. This apparently trifling improvement is of greater moment, than many are inclined to imagine; for garters are undoubtedly the cauſe of much miſchief, whether tied below or above the knee. The part to which they are applied, acquires an unnatural hardneſs; they diſpoſe the thighs and legs to dropſy, induce great fatigue in walking, and are very probably the cauſe, that certain perſons ſo frequently ſtumble, fall, and diſlocate or break the knee-pan. The great difference in walking, with and without garters, I have myſelf ſufficiently experienced. Many years ago, when in compliance with early habits and prejudices, I was accuſtomed to the uſe of garters, I could not walk or ride half a dozen miles without fatigue; which inconvenience I found immediately remedied, on abandoning thoſe improper ligaments.

The advantages of woollen *ſtockings* have been already pointed out. Upper ſtockings of ſilk, cotton or linen, will be no impediment; and they may be choſen of thicker or thinner quality, according to the weather and ſeaſon. But the beſt ſtockings may become hurtful, if

too ſhort in the feet, and may bring on a ſpaſmodic rigidity, and diſtortion of the toes. If, on the other hand, the feet of the ſtockings are too wide, ſo that they make folds in the ſhoes, they will injure the ſkin by their friction, and be attended with painful conſequences. The ſtockings of children ought neither to cover the knees, nor be tied in any other manner, than by faſtening them with ſtrings to the waiſtband; otherwiſe they will increaſe the ſize of the knees, render them preternaturally thick, and may produce white ſwellings, and other dangerous maladies.

Boots, if too tight, and made of thick leather, are ſo injurious to health, and ſo troubleſome in walking, that no reaſonable being will be inclined to force his feet and legs into them. The conſequences of a practice, as hurtful as it is injudicious, are obvious from the preceding obſervations.

The conſtant uſe of boots contracts the ſize of the legs, particularly the calves, as may be daily obſerved in military men, and the faſhionable loungers of Bond-ſtreet and Pall-Mall.

I now proceed to the laſt, but not the leaſt important part of our dreſs, namely, *Shoes*. The celebrated Dutch anatomiſt, CAMPER, did not conſider this ſubject unworthy of his attention, as he publiſhed a particular work, "*On the proper Form and Size of Shoes*," as late as the year 1781. The ſhoes ought to be of the ſize of the foot; they ſhould be alſo accommodated to the degree of motion or exerciſe, and to the nature of the ſoil and place, in which we wear them; circumſtances that

are at preſent too little attended to. A ſhoe that is bigger than the foot, prevents a firm ſtep; while one which is too narrow occaſions pain and troubleſome corns. Many volumes have been written on the Art of Shoeing that noble and uſeful animal, the Horſe:—it is conſidered as a fundamental rule in Farriery, that the ſhoe muſt be neither ſmaller nor larger than the hoof; and yet mankind can ſubmit to ſcrew their feet into a narrower compaſs than is intended by Nature. How frequently do we ſmile at the Chineſe, who, from a tyrannical cuſtom, ſqueeze and compreſs their feet, that they may remain ſmall and crippled. Yet theſe feeble Orientals proceed more rationally in this practice, than their European rivals. *They* begin with it gradually, and from the earlieſt infancy. *We* do not think of contracting the feet of our children, till they have almoſt attained the natural ſize, and thus endeavour to counteract the progreſs of Nature, when it is too late to do it with impunity. Who then are the greater ſlaves of faſhion, the Chineſe, or their enlightened antipodes?—It is pitiable to ſee the young and old, of both ſexes, advancing into an aſſembly or ball-room, with the moſt painful ſenſations. Without conſulting Lavater's Phyſiognomy, it is eaſy to diſcover, by their diſtorted features and compreſſed lips, what many whimſical perſons ſuffer from too tight, or, what is ſtill worſe, from ſhort ſhoes. Our knees would be more flexible, and our toes more pliable, more uſeful, and better adapted to perform the various

motions of the feet, if they were not continually preſſed and palſied by this improper *caſe-work*. Nature has deſigned the toes to be as moveable as the fingers. Thoſe unfortunate beings, who are born without hands, learn to perform with the toes the moſt aſtoniſhing taſks, to write and cut pens, to ſew, to draw; in ſhort, to ſupply almoſt completely the want of their hands.

Our feet, no doubt, would be more comfortable, eaſy, and uſeful, if we were not at the greateſt pains to deprive them of their elaſticity and vigour. The numerous nerves, croſſing the feet in every direction, plainly evince that Nature has endowed them with peculiar powers, of which we can ſcarcely form an adequate conception. The untutored Indian, or the wild African, excels not only the enlightened European, but likewiſe the lower animals, in running, leaping, and, in ſhort, in ſwiftneſs and agility of every kind, where muſcular motion is required. Either of them would heartily laugh at us, when we are obliged to employ profeſſional operators for extracting corns, and to contrive ointments and plaſters for the cure of thoſe evils, which we have wantonly brought on ourſelves.

The judicious BUCHAN ſays: "Almoſt nine tenths of mankind are troubled with corns; a diſeaſe that is ſeldom or never occaſioned but by ſtrait ſhoes;" and I preſume to add, that the remaining tenth part do not envy their fellow-creatures for this modern improvement. Our anceſtors, even within

my memory, wore their shoes with broad toes, which showed at once their good sense, and due attention to health and comfort. He who is regardless of the pain and trouble occasioned by warts, excrescences, and callosities of various forms; he who wishes to convert his feet and toes into so many barometers, to indicate the present state, and to foretel the future changes of the weather, will ever agree with his shoemaker, to save as much leather as possible; and he is scarcely to be pitied for his imprudence. Such a person will not unfrequently be disappointed in his excursions, when his crippled feet require temporary rest. I am further persuaded, that such cessations of exercise are extremely detrimental to health in general, and that they may be registered among the predisposing causes of the gout, rheumatism, and dropsy. Many people are thus almost deprived of the use of their legs; and the pain of the more virulent species of corns, as well as of the nails, when grown into the flesh, is excruciating.

For these obvious reasons, the soles of the shoes ought to be sufficiently broad, especially under the toes, where we are accustomed to see them so pointed, that they appear to be intended for weapons of attack or defence. If, for instance, the greatest breadth of the foot be four inches, the shoe should not be three and a half, but rather four and a half inches broad, since the bulk of the foot, and the seam of the leather, require an allowance of half an inch. The soles also ought not to be bent hollow, as is frequently done in wo-

men's ſhoes; for ſince the foot is not ſo conſtructed as to preſent a ſpherical ſurface, it is improper to deprive it of that firm hold, which Nature has given it by a nearly flat form. The foot muſt neceſſarily ſuffer from this ill-contrived ſhape, which deprives it of its flexion, occaſions difficulty in walking, and renders every ſtep unpleaſant and unſafe.

In the ſame manner as ſome perſons ſtrangely endeavour to diminiſh the breadth of the foot, others are equally diſſatisfied with its length. Hence we ſee them make uſe of an inſtrument, to force their feet into ſhoes perhaps an inch ſhorter than is requiſite for an eaſy motion. This cuſtom is the moſt deſtructive of any, and, though not much practiſed at preſent, ſince a long and narrow pointed ſhoe is the moſt faſhionable, yet the inconvenience and danger is not thereby removed. Inſtead of bending the toes with their nails inwards, as was formerly the caſe with ſhort ſhoes, we now ſqueeze them together, and often lay them croſsways over one another, ſo as to carry them about without motion, like a mere inſenſible maſs of matter. Upon ſtriking the foot againſt a ſtone, we feel the puniſhment due to ſuch outrage. Shoes of this kind may be aptly compared to the wooden boxes worn by the Dutch and French peaſants, from neceſſity, in wet ſeaſons, and which admit of quite as much motion as the long and ſharp pointed machines, in which our beaux and belles cramp their feet from choice.

A convenient ſhoe, therefore, ought to be ſomewhat round at the toes, ſufficiently long, with thick ſoles, and the upper leather ſoft and pliable. If it be deficient in any of theſe requiſites, the ſkin will be rendered callous; the perſpiration indiſpenſable to theſe parts will be ſtopped; warts and corns will appear in numbers; the nails will grow into the fleſh, and various complicated maladies be produced, which not only affect the feet, but the whole body. Beſide theſe more ſerious conſequences, a perſon walking with narrow ſhoes will be much ſooner and more ſenſibly fatigued, than he whoſe ſhoes are ſufficiently wide and eaſy.

The poor, as well as country people, who wear ſhoes ſufficiently large, have not only a much ſafer ſtep, but their feet are leſs ſubject to the multiplicity of complaints, with which ours are annoyed. Thoſe who, either from inclination or frugality, go barefooted in ſummer, have not even to plead the reaſon of the Ancients, who conſidered it as a mark of chaſtity; and I cannot help remarking, that it is both indecorous and unwholeſome, as well as an injudicious ſpecies of economy. The ſhoe, in our climate and mode of life, is a neceſſary defence againſt many accidental injuries, to which the foot is liable; and it is likewiſe a crime againſt decency, to expoſe any part of the human body to duſt and mire.

With reſpect to the *ſubſtance* of which ſhoes ſhould be made, no other general rule can be given, than that it ought to be ſufficiently com-

pact, to prevent the water from penetrating it; ſo elaſtic and ſoft, as to admit an eaſy motion of the whole foot; and accommodated to the weather, exerciſe, and ſoil in which it is uſed. To thoſe who have not the means or opportunity of procuring the patent water-proof leather, I ſhall ſuggeſt a method of preparing this ſpecies of leather, at a very ſmall expenſe. One pint of *drying oil*, two ounces of *yellow wax*, two ounces of *ſpirit of turpentine*, and one ounce of *Burgundy-pitch*, are to be carefully melted together, over a ſlow fire. Thoſe to whom the ſmell of pitch and turpentine is unpleaſant, may add a few drachms of ſome cheap eſſential oil, as of *lavender*, *thyme*, and the like. With this compoſition new ſhoes or boots are rubbed, either in the ſun, or at ſome diſtance from a fire, with a ſponge or ſoft bruſh: this operation is to be repeated as often as they become dry again, until they be fully ſaturated. In this manner, the leather at length becomes impervious to wet; the ſhoes or boots made of it laſt much longer than thoſe made of common leather, acquire ſuch ſoftneſs and pliability, that they never ſhrivel nor grow hard and inflexible, and, thus prepared, are the moſt effectual preſervatives againſt cold and chilblains.

To conclude, I ſhall only remark, that it is not adviſable to change the ſhoes from one foot to the other. Let us rather tread one of the ſhoes ſomewhat crooked, than injure our feet and health, by an adherence to a cuſtom, which has nothing but cuſtom to recommend it. If it be our ſerious wiſh to avoid

corns and other painful accidents, to which the rage of fashion subjects the feet of its votaries, we should persuade the shoe-makers to provide us with a particular shoe for each foot; and this can be done only by keeping *separate double lasts*, for every wearer. Is it not injudicious and absurd, to have both shoes made of the same size and form, when Nature has not formed both feet alike, or at least not in the same direction?

It gives me great satisfaction to add, that since the first edition of these Lectures was published, the rational practice of having separate shoes purposely made for each foot, has already been adopted among the more enlightened classes of society. From a full conviction of its great utility, I sincerely wish that it may soon become universal!

CHAP. V.

Of EXERCISE *and* REST; *their occaſional advantages and diſadvatages explained; their manner and limits aſcertained; together with directions for regulating both.*

MOTION, or bodily exerciſe, is neceſſary to the preſervation of health, which is thereby promoted, while the bounds of moderation are not exceeded. Too violent exerciſe, and a total want of it, are attended with equal diſadvantages. Much alſo depends on the kind of motion, and the various poſtures of the body.

The eſſential advantages of exerciſe are the following: bodily ſtrength is increaſed; the circulation of the blood and all other fluids promoted; the neceſſary ſecretions and excretions are duly performed; the whole maſs of the blood is cleared and refined, ſo that it cannot ſtagnate in the minuteſt capillary veſſels; and if any obſtruction ſhould begin to take place, it will be effectually relieved.

That exerciſe is enjoined by nature, we may learn from the whole ſtructure of the human body, from the number of muſcles formed for motion, and from the mechaniſm in the circulation of the blood itſelf. There are, indeed, no healthier people than thoſe who have continual ſtrong exerciſe. Man in a ſtate of health is inſtinctively induced to muſcular exertion; and children that are per-

fectly healthy are conſtantly running about, and in almoſt uninterrupted motion.

But if exerciſe, either by its violence, or too long duration, exceed the proper limits, it naturally quickens both reſpiration and the circulation of the blood, which may occaſion the burſting of ſmall blood-veſſels, miſcarriages, inflammations, and collections of blood towards certain parts of the body, ſuch as the heart and the brain. The ſaline acrimony of the fluids is thus more diſengaged; the fat is diſſolved; and inflammatory fevers, hemorrhages, and palſies, may be the conſequences.

Violent exerciſe is particularly hurtful to thoſe who are unaccuſtomed to it, or who have committed exceſſes in drinking, and, what is ſtill worſe, in eating more than is neceſſary: and thoſe whoſe bodies have not been ſufficiently nouriſhed by food and drink, may alſo be injured by too much exerciſe.

The ſudden tranſition from a ſtate of reſt, to violent action, is likewiſe hurtful, and ſtill more ſo in hot than in cold weather. After ſtrong emotions of the mind, every ſpecies of bodily exerciſe ought to be avoided, till the tranquillity of mind return with the reſt of the body; yet we ought to guard againſt the effects of cold, as it may prove extremely prejudicial in ſuch a ſtate.

With respect to the manner of taking exercise, three principal points are to be attended to:

1. As to the *kind* of exercise,—the various species of which may be aptly divided into *active* and *passive*. The active are of a very diversified nature; *walking; running*, *leaping*, *swimming*, *riding*, *fencing*, the *military exercise*, different sorts of *athletic games*, as well as every other kind that requires muscular exertion.—*Passive* exercise comprises *riding* in a carriage, *sailing*, *friction*, *swinging*, &c.

The more active species of exercise are beneficial to youth, to those of a middle age, to the robust in general, and particularly to the corpulent, the plethoric, and those whose evacuations are not in due proportion to their supplies. The passive kinds of exercise, on the contrary, are better suited to infants, to old, dry, and emaciated persons, to the delicate and debilitated, and particularly to the asthmatic and consumptive.

2. As to the *time* in which exercise is most proper to be taken—this depends on so great a variety of concurrent circumstances, that the rules by which it may be regulated, cannot be universal, and must therefore be collected from the preceding observations on the properties and effects of Air, Food, Drink, and so forth. Other particulars, such as relate to greater or less degrees of fatigue attending the different species of exercise, and the utility of it, in certain states of the mind and body, must determine this, as well as

3. The *duration* of it;—for it is almoſt impoſſible to lay down poſitive rules, how long every individual, in every particular ſituation, may continue a certain ſpecies of exerciſe, ſo as to derive advantage. Theſe rules, as far as they can be eſtabliſhed, may be collected from the ſubſequent remarks, and then applied to the particular kinds of exerciſe, by which we may be benefited in different caſes and ſituations.

It is neceſſary firſt to obſerve, that any kind of exerciſe which we are accuſtomed to take, with a view to brace the body, is far preferable to an unuſual one, which may be attended with a contrary effect. We ought always to begin gently, and to finiſh gradually, never abruptly. Exerciſe in the open air has great advantages over that in houſes and cloſe apartments. Beſides, ſtrong bodily exertions, ſuch as dancing, fencing, turning, and the like, if practiſed in ſmall and confined places, on account of the increaſed perſpiration, ſoon vitiate the air, and render it unfit for breathing.

If we take exerciſe for the ſake of health, we ought to employ ourſelves during that time with ſome agreeable object, and not perform any labour nor ſeriouſly occupy the mind. Hence certain kinds of exerciſe cannot be unconditionally recommended to every individual, as means conducive to health; though they ſhould of themſelves be proper, and in other reſpects agree with the conſtitution. He who forces himſelf to any exerciſe, or performs it with reluctance, will thence derive more injury than benefit: motions or

taſks, therefore, which we impoſe upon ourſelves, as recreations after work, or after ſitting and long thinking, ought to be ſtrictly relaxations, not toilſome exertions.

Perſons of an active mind find a ſpecies of relaxation, and even ſatisfaction, in a change of their purſuits, and particularly in the tranſition from hard and difficult, to more pleaſant and eaſy avocations. To ſuch individuals any exerciſe is frequently of great advantage, eſpecially if it anſwer, or appear to them to be conducive to any uſeful purpoſe. To one who has habituated himſelf to grave and ſerious purſuits, it ſhould not be recommended to join in amuſements requiring bodily exertion, and attended with diſſatisfaction and irkſomeneſs; for his health will not be improved by exerciſe, at once unuſual and unpleaſant.

To continue exerciſe until a profuſe perſpiration, or a great laſſitude, take place, cannot be wholeſome. In the forenoon, when the ſtomach is empty, or at leaſt, not too much diſtended, muſcular motion is both moſt agreeable and healthful; it ſtregthens digeſtion, and heats the body leſs than with a full ſtomach. A good appetite after it, is a proof that it has not been carried to exceſs. But it is not adviſable to take violent exerciſe immediately before a meal; as this might occaſion a deficiency of thoſe humours, which are neceſſary to promote digeſtion. If we ſit down to a ſubſtantial dinner or ſupper, immediately after a fatiguing walk, when the blood is heated, and the body is in a ſtate of perſpi-

ration, the worſt conſequences may enſue, eſpecially if we begin with the moſt cooling diſhes, or with ſalad, or a glaſs of cold drink.

Exerciſe is likewiſe hurtful directly after meals; ſince it obſtructs digeſtion, and propels thoſe fluids too much to the ſurface of the body, which are deſigned for the ſtomach, to promote the ſolution of food, and without which many crude and undigeſted particles are forced to enter, and to mix with the blood. The old rule of the *Salernitan School*, "*Poſt cœnam ſtabis, ſeu paſſus mille meabis*," (i. e. after ſupper ſtand, or walk a mile) is as frivolous as it is abſurd; for experience ſufficiently informs us, that moſt perſons, particularly the nervous and irritable, are liable to the heartburn, eructations, and even vomiting, when they are obliged to move about or to take any exerciſe immediately after meals. The inſtinct of the lower animals alſo contradicts this rule; becauſe the wildeſt creatures are inclined to reſt after food.

Perſons who are under the neceſſity of moving immediately after their meals, or who have no other ſpare time for walking, muſt endeavour to overcome theſe inconveniencies by cuſtom, and a more rigid temperance: they ſhould firſt take the moſt gentle kind of exerciſe, and gradually increaſe it; and, as the late hours of dining, now ſo generally in faſhion, have in a manner aboliſhed heavy ſuppers, a moderate walk after a ſlight evening's repaſt cannot be injurious. But at all events, fatiguing exerciſe, after a full meal, ſhould be delayed till the ſtomach has digeſt-

ed and assimilated the food, which generally takes place in the third or fourth hour after eating. The most proper occupations after dinner, are such as can be performed without trouble, or great efforts of reflection and bodily exertion, and such as afford a kind of amusement.

Walking, the most salutary and natural exercise, is in the power of every body; and we can adapt its degree and duration to the various circumstances of health. By this exercise, the appetite and perspiration are promoted; the body is kept in a proper temperament; the mind is enlivened; the motion of the lungs is facilitated; and the rigidity and contraction of the legs, arising from too much sitting, is relieved. The most obstinate diseases, and the most troublesome hysteric and hypochondriacal complaints, have been frequently cured by perseverance in walking.

The most proper walk for health, is in an agreeable country, in a healthy, pure, dry air, amidst social and cheerful conversations, in a mild sunshiny day, whether in spring, autumn or winter; in the summer mornings and afternoons, but by no means in the oppressive heat of the sun. To walk in towns, although it gives exercise, is less conducive to health; because the atmosphere is generally filled with vapours arising from impure exhalations.

Those who are not hardened against the vicissitudes of the weather, must avoid not only hail and rain, but also the cold mornings and evenings, and ought, therefore, in rough and moist cold weather, rather to take exercise

within the houſe, but without preventing the acceſs of air. Violent wind ſhould alſo be avoided; and if we are obliged to face it, we ought not to walk too faſt, particularly in winter, when the ſmall pores of the ſkin are compreſſed by the air.

In walking, the proper choice of places is a matter of much importance. Marſhy and damp fields ſhould be avoided; and in autumn, when the foliage is decaying, it is not adviſable to chooſe woods, groves, and damp meadows, for our pleaſure-walks. In ſummer, on the contrary, a walk in the foreſts or meadows is both agreeable and healthful. Hills and elevated ſituations deſerve particularly to be viſited, not only on account of the purer air we breathe, but alſo of the body enjoying a variety of exerciſe, in aſcending and deſcending.

The inhabitants of towns require longer walks for the preſervation of their health than country people. The latter, even with leſs exerciſe, derive vigour of body and ſerenity of mind, from a purer air, and more ſimple manners. Regular and daily walking, therefore, cannot be too much recommended to the citizen, who in the preſent age is ſo much haraſſed with nervous and hypochondriacal complaints; but, though this be an uſeful and excellent ſpecies of exerciſe, yet ſome rules ought to be obſerved, if we expect to derive from it the wiſhed-for advantages.

1. We ſhould contrive to procure as much pleaſure and recreation after ſerious occupa-

tions, as is poſſible and conſiſtent with our ſituation in life.

2. To read during a walk, whether the ſubject be of a grave or amuſing nature, is a cuſtom improper in itſelf, and detrimental to the eyes, beſides the danger it occaſions of falling: this practice not only deprives a perſon of the principal advantages of a walk, but people eaſily accuſtom themſelves to an unſafe and ungraceful manner of carrying the body. It is attended with the worſt conſequences to the eyes, becauſe the focus is continually ſhifted, and the retina is thus exceſſively fatigued.

3. We ſhould not frequent the ſame, perhaps often a dull and unvaried walk, though moſt convenient. It is better to change the walk occaſionally, and gradually to extend the diſtance. The moſt agreeable proſpects ſhould be choſen for variety; otherwiſe the perpetually uniform walk will excite melancholy and unpleaſant ſenſations, as much as the cloſet or the ſtudy.

4. We ought to accuſtom ourſelves to a ſteady and regular, but not a quick pace.

5. An agreeable companion contributes much to ſerenity of mind: but let us rather go alone, than in dull or frivolous company, if we at all poſſeſs the art of profiting by ſolitude.

6. In the choice of our companions, we ſhould attend not only to congeniality of character and taſte, but ſhould alſo, in this exerciſe, aſſociate with thoſe whoſe pace accords with ours; for if the heavy and corpulent man make a lean and light-footed perſon

the companion of his walks, he will remain behind, or be overheated and fatigued, if he endeavour to keep pace with his partner, who must likewise suffer from the constraint of slower motion.

7. Some people cannot speak or converse in walking, without frequent stops, and thus make little progress. From this singularity, they are generally much fatigued at their return, without having reaped any benefit from their exercise.

Running not only shakes the body with greater violence than walking, but it heats the head and face, and too much quickens the circulation of the fluids. Soon after a meal, it prevents digestion, mixes the pure fluids with the impure, and obstructs the secretion of humours. If long continued, it is hurtful to every one, particularly to those unaccustomed to it, to the plethoric, to those subject to hemorrhages, gravelly complaints, and frequent nervous head-ach, and to sedentary persons employed in mental labour. To run up a hill, too much fatigues and strains the muscles; and to run against the wind, produces giddiness in the most robust, and makes them liable to various accidents, that may be attended with danger.

Dancing, considered in itself, and under proper limitations, is an admirable exercise, especially in winter, when the heavy atmosphere, much rest, and sitting, render the blood thick, and dispose persons to hypochondriasis. Moderate dances have every advantage of a gentle exercise, besides the beneficial effects

produced on the mind by cheerful company and music. On the other hand, the more violent dances may be, and frequently are, attended with the most pernicious effects. The exertion of so many muscles, the quick inspiration of a warm atmosphere in a crowded assembly, impel the blood to circulate with a rapidity equal to that in the hot stage of a fever, and propel it to the head and breast, so that the vessels seldom possess a sufficient power of resistance. If we add to this, the effect of heating liquors, of too sudden an access of the cold air, so eagerly courted, of exposing the face, head and breast, suddenly to its influence, together with the imprudent use of cooling drink, and ice itself, we can no longer be surprised, that spitting of blood, consumption of the lungs, and inflammatory disorders, are the frequent consequences of such excesses.

This violent species of exercise is particularly dangerous to females; and the use of fans, in order to cool themselves, and thus check perspiration, (which is wisely designed by nature to produce the same effect, in a more salutary degree, if not wantonly repelled) is extremely imprudent. Delicate persons ought, for their own sakes, to join in no other but the shorter and less fatiguing dances, especially in summer.

A dancing-room ought to be cool, but without admitting currents of air, and without too much smoke from candles. It would be advisable for the whole company, after dancing is over, and before they venture into

the open air, to change their linen, and afterwards to wait a quarter or half an hour before they return home. During that time, they may be refreshed by tea, and thus encounter the open air without danger. Every dancing assembly ought to conclude with minuets. Persons of an indisposed and debilitated body, such as the consumptive, those troubled with ruptures, gravelly and similar complaints, should not attempt to dance. Lastly, this exercise is hurtful to every person in the hot and sultry days of summer, when nature renders cooling drink indispensable, and when we are much inclined to perspire, without any additional inducement.

Riding in carriages is an exercise the more conducive to health, that the gentle jolts tend to resolve stagnations in the intestines of hypochondriacs, corpulent people, convalescents, and the consumptive. But, if the motion of the carriage be too rapid, it is hurtful, as it not only accelerates perspiration before the matter of it is properly prepared, but also injures the solid parts, especially the kidneys, generates congestions of the blood towards the head, and consequently head-ach, giddiness, vomiting, and obstructions. If, however, we wish to derive all the good effects from riding in a carriage, the body of it ought not to be too nicely suspended in straps and springs, nor should the motion be too slow. One of the windows, at least, ought to be kept open, that the perspiration and breath of several persons, inclosed in so narrow a place, may not too much vitiate the air.

The infirm, who cannot enjoy the free air in bad weather, ſhould take exerciſe upon rocking horſes, or ſimilar contrivances, in halls and ſpacious apartments, while the upper part of the windows is kept open, guarding, however, againſt a current of air. Laſtly, the furious driving in open carriages, in ſultry weather, may be indeed pleaſant, on account of the agreeable current of air; but it may alſo become dangerous to perſons ſubject to violent perſpiration.

Leaping, *fencing*, the faſhionable *military exerciſe*, and *manœuvring with horſes*, are violent kinds of exerciſe, which cannot be recommended to thoſe who are not in a perfect ſtate of health, or to the corpulent and plethoric, whoſe blood-veſſels may be ſo overſtrained as to burſt, by motions which require the muſcular exertion of the whole body.

To thoſe who are otherwiſe healthy, but cannot afford to take ſufficient exerciſe, either by their particular ſituation in life, or from want of time, I would recommend a *new* ſpecies, which, in its ſalutary effects *on the whole body*, is equal if not ſuperior to any other. It ſimply conſiſts in moving the whole body, in the middle of a room, (and, if convenient, with open windows) and let the operator, while he inclines forward upon his toes, raiſe his arms, and drop them with the alternate motion backward on his heels. Thus the *whole* muſcular ſyſtem will be duly exerciſed, without confining the motion to one particular part. This is even preferable to the *dumb-bells*, which, like every other ſpecies of

partial exercise, if persevered in, are so far objectionable, as they require the uncommon exertion of certain muscles, while the due and uniform circulation of the blood to those parts is disturbed, to the detriment of others which are at rest.

To persons who are deprived of the use of their limbs, and are weak and delicate, the motion of a sedan chair is of great benefit, if it be continued for a sufficient time; for it disposes the body to a free perspiration. Of the same nature is the sailing in barges or boats, either on lakes or rivers.

A much more active kind of bodily motion is produced by short voyages at sea. Those who are unaccustomed to it, generally experience giddiness of the head, nausea, and vomiting: hence it is beneficial to an impure stomach. To consumptive patients it frequently is the last resource; but it is wrong to delay it, till all other remedies have failed. For it is not in the last stage of consumption, when the lungs are already ulcerated, or when an abscess has already burst in the thorax, and the ichorous matter has been communicated to the blood, that we can expect any benefit from voyages. The changes of scene and climate, indeed, powerfully co-operate in effecting changes in the human system; but, if the disease has preyed too much on the vitals of a patient, or if he is spitting blood, the motion of the vessel must necessarily prove injurious. On the other hand, the debilitated, the nervous, and particularly the hypo-

chondriac, cannot resort to a better remedy than a short voyage.

Riding on horseback is, in a certain respect, an excellent medical remedy, by which all the muscles, from the toes to the head, are in reciprocal motion, and which manifests its principal effects on the intestines of the abdomen. It clears the intestinal canal, promotes the evacuation of crude substances, strengthens the stomach and bowels, improves digestion, prevents or resolves incipient obstructions, and facilitates the perspiration of the whole body. To the hypochondriac it is an inestimable remedy; but, if the obstructions should be too far advanced, riding ought either not to be attempted at all, or practised in as slow a pace as the horse can walk. In short, it is to be undertaken with the same precaution as sailing, in those stages of consumption which admit of these remedies.

Farther, riding is not advisable in cases of hemorrhoids, ruptures, and gravel. The feeble and relaxed ought to begin with a gentle pace, and to increase it gradually; for a moderate trot is the proper medicinal mode of riding: and, if they expect to derive real advantage from riding on horseback, they must neither trot too fast, nor make use of a heavy and jolting horse. Such patients as are unaccustomed to this exercise, particularly hypochondriacs, generally ride with great timidity. Their lives are, as it were, in continual danger; by the awkward posture of their bodies on horseback, they are frequently hurt in parts accessible to injuries; stitches in the

ſide, congeſtions of blood in the head, and violent perſpiration, counterbalance every advantage received from their excurſions. To moſt of theſe patients, if they can afford it, the riding-ſchool cannot fail to be extremely uſeful; for the regular manner of training the horſes there, their uniform and ſteady motion, the attention paid to the proper poſture of the rider, by keeping his breaſt and abdomen erect, and the legs properly extended; all are circumſtances very favourable to the patient and convaleſcent. But, even here, it is the moderate kind of exerciſe only, that promiſes real benefit in a medicinal ſenſe;—continued furious driving and hard trotting are always extremely dangerous.

For ſimilar reaſons, riding on horſeback, as well as in carriages, immediately after a meal, is ſtill more dangerous than walking. The moſt proper time for riding is the morning, when the ſtomach is empty. It ſhould, however, not be long continued; one hour, in general, is quite ſufficient; and in this reſpect, riding is preferable to any other exerciſe, as it can be practiſed by perſons, whoſe buſineſs does not permit them to devote much of their time to that purpoſe.

Swimming is likewiſe an uſeful exerciſe, which at the ſame time has the additional advantage of a cold bath. The motions and muſcular exertions, which it requires, increaſe its utility: ſome rules and precautions, however, muſt be attended to. They have been ſtated at conſiderable length in CHAP. III. "On the uſe of Baths." I ſhall, therefore,

at preſent only remark, that we ſhould not enter with the feet, but with the head, into a cold bath; that the body ſhould be neither too warm nor too cold in applying this bath; and that we ſhould not chooſe dangerous rivers, or ponds, nor enter the water before the rays of the ſun have in ſome degree warmed it, and rendered it more temperate. The ſenſation produced by cold water is indeed leſs to be apprehended, than the conſequences ariſing from imprudently plunging into it, when the body is either too much cooled or heated.

Playing at *Hand-ball*, *Cricket*, and the like, have a more powerful effect on the muſcles than the abdomen; and are therefore, in one reſpect, unavailing to ſedentary people, and on the other hand unneceſſarily fatiguing. *Carouſſels*, or riding on machines in a circle, are movements which require too much muſcular exertion of the debilitated, whoſe ſtrength admits only of a moderate exerciſe. Theſe, as well as *ſwinging machines*, and the lately contrived *ſwinging cars*, moving on a wheel with perpendicular pivots, are the leaſt proper for thoſe who are inclined to giddineſs, and nervous ſymptoms in general, on account of the fear, and ſometimes the dangerous accidents attending them. But, at the ſame time, both ſpecies of exerciſe are extremely favourable in ſuch ſtates of health, as require an uniform and gentle motion of the whole body, in the pure and open air, particularly in the high ſwinging cars, which are well calculated for that purpoſe.

Speaking is one of the moſt healthful and neceſſary ſpecies of exerciſe; and, without any ludicrous idea, I may aſſert, that this practice is particularly ſalutary to the female ſex, who are more confined at home than men. Here, however, as in other caſes, exceſs is prejudicial. Loud reading and ſpeaking are of ſingular advantage to literary men, affording them good ſubſtitutes for other kinds of exerciſe, for which they ſeldom have ſufficient leiſure or opportunities. It is to this cauſe we may juſtly aſcribe the longevity of many ſchoolmaſters, and teachers in univerſities, who, notwithſtanding their ſedentary employments, and the vitiated air which they daily breathe in ſchool-rooms, attain to a long and healthy life. To ſpeak very loud, and to exerciſe the voice immediately after a meal, is pernicious to the lungs, as well as to the organs of digeſtion.

Singing promotes the lively circulation of the blood through the lungs, and all parts of the body; the lungs, as well as the abdominal inteſtines, are ſhaken by the vibrating motion of the air, in a manner very conducive to their ſalubrity. The phlegm, and other noxious matter, collected about the pulmonary veſſels, are thereby reſolved and carried away, ſo that they cannot mix with the blood, and the moſt dangerous ſtagnations in the ſmaller veſſels are thus prevented: the blood is uniformly diſtributed and driven to the larger veins and arteries. For the ſame law of nature, by which river-water is preſerved ſweet and freſh, while that of pools and ditches ſtag-

nates and putrifies, is alſo fully applicable here. The air inhaled in ſinging is of ſimilar ſervice to us, as the current to the water: perſpiration is thereby promoted, and the mind is enlivened with the body. Thoſe ſedentary artificers or mechanics, who from habit almoſt conſtantly ſing at their work, unintentionally contribute much to the preſervation of their health.

All *Wind Inſtruments* are more or leſs hurtful; for, as much air is thereby introduced into the lungs, and as it is but gradually and partially emitted, that organ ſoon becomes debilitated. Hence perſons of weak lungs, who are very fond of playing the flute, hautboy, or French horn, are frequently afflicted with ſpitting of blood, cough, ſhortneſs of breath, and pulmonary conſumption. Beſides, blowing checks the circulation of the blood through the lungs, accumulates it towards the head, and diſpoſes ſuch muſicians to apoplexy. By the violent expulſion of the air, the abdominal muſcles are contracted, all the parts of the abdomen are compreſſed, the circulation of the fluids is retarded, and many unpleaſant and frequently fatal conſequences are induced.

There are other kinds of *muſical inſtruments*, which, in a dietetical view, deſerve to be condemned. Such is the *Harmonica*, which, by the rotation of the glaſſes on the fingers, (a kind of negative electricity) induces a great degree of nervous weakneſs. And this effect is much accelerated by the acute and vibrating ſounds of this inſtrument, by which the

organs of hearing are intenſely affected. Perhaps all ſtringed inſtruments, which are played by the touch of the fingers, ſuch as the harp, the guitar, and the violin, produce a ſimilar effect on the nervous ſyſtem; eſpecially if it be true, that the *papillæ*, or the points of the fingers, are the ſtrongeſt conductors of the ſuppoſed nervous fluid. It is at leaſt probable, that to be able to play on ſuch inſtruments, with expreſſion, requires a more than common ſenſibility of the nerves, which indeed may be ſometimes artificially acquired, but to the detriment of health. For it cannot be doubted, that a local excitement of irritability may be gradually propagated over the whole nervous ſyſtem; and that, from raiſing ſome parts of the body to a preternatural ſtate of ſenſibility, the common character of thoſe who are called *Virtuoſi*, is generally marked with nervous debility. Every body knows in how extraordinary a manner muſic may influence the mind; that the paſſions of perſons of ſenſibility may be moſt effectually rouſed and allayed by it; nay, that in ſome individuals, every feeling of the mind can be affected at pleaſure, by the various modifications of harmony. As, therefore, ſadneſs, grief, and other depreſſing paſſions, may be alleviated by appropriate muſic, it is an exerciſe deſerving every commendation. Yet we muſt neither expect to cure by it diſeaſes of the mind, nor their concomitant bodily diſorders: this is beyond the power of muſic, which acts as a palliative only, or as a nervous ſtimulus, the effect of which is inſtanta-

neous, but of ſhort duration. For, as ſoon as the exciting cauſe ceaſes, it is ſucceeded by an uncomfortable ſenſation of debility and relaxation. It is even probable, that muſic, like all other anodyne and ſoothing remedies, may in the end increaſe the diſpoſition to nervous weakneſs, by its too frequent repetition.

Laſtly, the poſture of the body, in practiſing muſic, alſo deſerves attention; as the breaſt and abdomen may be compreſſed by ſtooping, ſo as to cauſe very ſerious complaints; and as the eyes may be injured by reading the notes, at too great or ſhort a diſtance, eſpecially for the double keys of the harp and harpſichord: indeed, reading muſic is in general more fatiguing to the eyes, than any other kind of exertion.

Friction of the body, which can be performed either by the naked hand, a piece of flannel, or ſtill better by a fleſh-bruſh, is one of the moſt gentle and uſeful ſpecies of exerciſe. The whole body may be ſubjected to this mild operation, but principally the abdomen, the ſpine, the arms, and legs. It clears the ſkin, reſolves ſtagnating humours, promotes perſpiration, ſtrengthens the fibres, and increaſes the warmth and energy of the whole ſyſtem. In rheumatiſm, gout, palſy, and green-ſickneſs, it is an excellent remedy.

Daily friction of the whole body was with the ancients, and ſtill is in the Eaſt Indies, conſidered one of the moſt indiſpenſable requiſites of a people, who by their indolent manner of life ſeem to have adopted it, more with a view of indulging in ſenſual pleaſures, than

as the means of preſerving health. It is, however, one of the moſt ſalutary expedients, by which the whole body receives nearly as much benefit as from a tepid bath, and which, as being in the power of every perſon, ought to be more frequently and more generally uſed. To the ſedentary, the hypochondriac, and perſons troubled with indigeſtion, who cannot afford leiſure to take ſufficient exerciſe, the daily friction of the belly, in particular, cannot be too much recommended as a ſubſtitute for other means, in order to diſſolve pituitous ſtagnations, which may be forming in the abdomen, and to re-invigorate the veſſels. And though it be not attended with all the advantages enjoyed from exerciſe in the open air, it ſtill produces a powerful effect on the organs of digeſtion; for the moderate exerciſe of a whole day will ſcarcely invigorate the abdominal veſſels, and particularly the ſtomach, ſo much as the friction of theſe parts, continued for half an hour. But, if it be intended for theſe beneficial purpoſes, it ſhould be performed in the morning, on an empty ſtomach, or in bed before we riſe, gently and ſteadily, in a circular direction, and at leaſt for five or ten minutes at a time.

In a weak ſtate of the abdomen, and the nerves in general, we may derive ſtill more ſalutary effects from friction, if the ſtomach and the whole abdomen be rubbed every morning, and at night, before going to bed, with a ſponge, or a piece of flannel dipped in cold water. This poſſeſſes ſtill greater advantages over internal medicines, becauſe it can

be safely employed, even in cases where the alimentary canal, from its obstructed state, scarcely admits of any other remedies, while friction, and the affusion of cold water, generally relieve these obstructions, and even habitual costiveness.

Motion or exercise ought to be continued only till we feel an agreeable lassitude, and a sensible degree of perspiration. If it be carried farther, it weakens instead of strengthening the body, and leaves behind disagreeable consequences to the lungs, filled with heated blood. Even the robust man will experience some, though less unpleasant effects than the debilitated, if he has committed an excess of this nature.

After having taken exercise, we should not venture to rest in a cool place, nor upon a green plot; still less should we expose ourselves to a current of air; but rather frequent a place warmed by the mild rays of the sun in summer, or a moderately warm apartment in winter, so that the sudden change of temperature may not injure us, by suppressing perspiration.

For the same reasons, the thirst we generally feel after exercise, ought not to be instantly satisfied by cooling drink. It is however allowable to drink some warm or diluent liquors, if we cannot wait till the natural warmth be restored. The late Dr. Fothergill very properly advised, that people in a state of perspiration should, to avoid all danger, eat a mouthful of bread, with a little salt, and thus gain time, till the blood and the liquor

to be drunk had acquired a more equal temperature. A ſmall quantity of vinegar, or the juice of lemons in water, is well calculated to quench thirſt, and at the ſame time to promote perſpiration. Travellers on foot ought to be upon their guard againſt too much drink; for, the more liquids they take, the more they will perſpire, and the greater will be the ſubſequent relaxation and danger of cathing cold, when their clothes are ſaturated with perſpirable matter. They ſhould alſo abſtain from drink productive of a laxative effect, which would cauſe debility, and even faintings. The moſt ſuitable of all ſubſtances to mix with water, is the pure or eſſential acid of tartar, with a ſmall quantity of ſugar. This affords a cooling and refreſhing beverage, without relaxing the bowels, like lemonade. Perſons with whom vitriolic acid agrees, may take a tea-ſpoonful of a mixture, conſiſting of ſix or eight parts of ſpirits of wine, and one part of vitriolic acid, to a pint of water. A beverage made of a weak acidulated wine and water is cooling and ſtrengthening. In the very cold weather of winter, people ought to avoid all heating liquors, ſuch as ardent ſpirits and ſtrong wines. Warm diluents, ſuch as tea and coffee, are equally improper, and a poor protection againſt cold; for their warming property is of ſhort duration; they are productive of debility, a more torpid circulation of the blood, and conſequently of an increaſe of cold. It is much better to eat previouſly ſome ſolid meat, by which the digeſtive organs may be exerciſed, ſuch as cold

animal food and bread, and to drink after it ſome bitter ale or beer. On the other hand, when we ſuffer from intenſe cold, or have been expoſed to the wind and weather, a few cups of ſtrong tea, with plenty of cream and ſugar, is then the beſt and ſafeſt refreſhment: and it is equally invigorating in ſummer after extreme heat and fatigue. Feeble individuals, whoſe ſtomachs generate much acid, and who are frequently troubled on their journies with a ſudden voracious appetite, are liable to the moſt painful attacks of weakneſs on the road, and on that account they ought always to be provided with ſome kind of ſolid food in their excurſions. Such perſons ſhould carefully abſtain from the uſe of wine, brandy, or other heating and ſtimulating cordials, while travelling, eſpecially in the morning: they might with more advantage eat ſome bread and butter, warm or buttered ale, ſtrong broth, gruel, or the like nouriſhing ſubſtances.

We are now to conſider the conſequences ariſing from the *want of exerciſe*. This, indeed, is ſtill more debilitating than too violent motion. The ſolid parts of the human frame are relaxed by it; the circulation of the fluids is retarded; they gradually ſtagnate in the ſmaller capillary veſſels; the ſecretions are diminiſhed; and abundance of moiſture or fat is generated, which renders the body, as well as the mind, more indolent and lifeleſs: —relaxation of the muſcles, obſtructions of the inteſtines, hemorrhoids, apoplectic fits various ſpecies of dropſy, and at length a pre

mature death, are the sad consequences. Men of letters are the most unhealthy of all human beings, because their bodies have scarcely any other exercise but the imperceptible motion of the arms. Want of appetite, flatulency, anxiety, at one time obstructions, at another diarrhœa, and the most diversified nervous symptoms, are their attendants. Sleep is beyond their reach; a thousand tormenting inconveniencies, hypochondriasis, and at length a complete state of melancholy, is too frequently their lot. Temperance alone will not remedy all these evils; for since we cannot remain vigorous and healthy for two days together, with the same mass of blood, a new access of the purest and most subtle parts of our fluids must daily support the nervous system, in order to preserve its regular functions. If this be not continually restored, weakness and relaxation of body and mind are the inevitable consequences; with this difference only, that in a state of debility, from too much bodily exercise, the thick and coarse particles of the fluids are carried into circulation with the others, and the next meal, or the first sleep after it, very soon supplies the deficiency: in mental labour, on the contrary, digestion is interrupted, the crude and viscid parts of food remain unassimilated, and the body is prevented from receiving its proper nourishment. In like manner, the sedentary mechanics and artificers are affected; particularly shoe-makers, taylors, and weavers. They experience hardships similar to those, to which men of letters are subject; and it has

been frequently obſerved, that they are very liable to diſeaſes of the mind, and eſpecially to religious fanaticiſm.

Standing, though uſeful as a change after long ſitting, is apt to occaſion accumulations of blood, or rather of the ſerous part of it, in the lower extremities. Swelled legs are therefore common among printers. It is a poſture little calculated to relieve the ſtudious, and the body is at the ſame time more fatigued by ſtanding than ſitting. If we ſit much, we muſt attend to the two following rules: 1. that no part of the body be compreſſed: and 2. that it be not too long continued at one time. The common manner of ſitting, with the head reclined, is extremely pernicious; for the circulation of the fluids in the abdomen is thus checked; the inteſtines are compreſſed, and the veſſels of the breaſt contracted. The head alſo ſuffers by bending it too much forward; as the blood is thereby impelled to circulate towards it more copiouſly than is conſiſtent with health. The ſtudious, eſpecially, would do well, not to perform all their avocations in a ſedentary poſture, but occaſionally to relieve at once their body and mind, by ſtanding, or walking about the room. The mode of ſitting ought alſo to be made as convenient as poſſible, ſo that both the body and head may be kept in an almoſt perpendicular poſture; that the breaſt and abdomen may not be obſtructed in their alternate expanſion; and laſtly, that the arms and legs may not be held in a crooked and unnatural poſition: all this ſhould be

particularly attended to, by thoſe who teach children to read and write. The preſſure of the abdominal muſcles may in a great meaſure be prevented by high tables and deſks, and by raiſed ſtools or chairs, upon which a perſon rather ſtands than ſits.

To lie or reſt horizontally is attended with a ceſſation of all exerciſe. If the head be placed low, and this too long continued, there may ariſe head-ach, by the increaſed preſſure of the blood on the brain. Here, likewiſe, a frequent change of poſture is neceſſary, in order to obſtruct none of the bodily functions, and to prevent the ſtagnation of humours.

Finally, the *faculties of the mind* deſerve no leſs attention than thoſe of the body.

Alternate changes of tranquillity and activity are equally beneficial to the mind, as reſt and exerciſe to the body. Too long continued, too frequent, and too profound reflections, are alike injurious to both. The ſame powers are diminiſhed here as in bodily labour, and in a ſtill greater proportion; for muſcular exertions, though fatiguing, are reproductive of new vigour. This may indeed be alſo applied to mental labour, by which the mind improves in capacity, but the body is a ſufferer from every unuſual exertion of the mind; and, with the body, the mind by degrees alſo becomes diſeaſed:—in profound meditations the vital ſpirits are, as it were, withdrawn from the organs of ſenſe; the body is for the time almoſt deprived of ſenſation; and we frequently become in a manner

abſent. Reflection always directed to one object, not only debilitates, but alſo ſuppreſſes the other faculties of the mind, and does not permit it to deviate from its favourite purſuit. Thus we ſometimes ſee melancholy, nay madneſs itſelf, overwhelm perſons devoted to the contemplation of oue particular object. Intenſe and abſtruſe thought, in general, if not checked in time, may be attended with ſtupor or inſanity.

To enable us to reflect ſeriouſly upon an important ſubject, time and place ought to be ſo choſen that the mind may be diverted by no other object; for two ideas cannot be conceived at one time. Hence we ſhould ſtudy in an apartment which is not too light, and where we are undiſturbed by noiſe:—the muſcles ſhould not be actively employed during ſtudy: it is therefore improper and pernicious, immediately after meals, or before digeſtion be completed. The morning, indeed, is the moſt profitable time for ſtudy; though neceſſity and cuſtom make many exceptions; ſo that ſome perſons, from gradual practice, are able to perform their mental taſks during the greateſt noiſe, and in a room full of children.

Much and frequent inactivity of mind agrees, indeed, well with the body, which in that ſtate fully performs its functions, but it becomes unwieldy, inſomuch as at length to ſtupify the mental powers: the ideas become obſcure and confuſed; and a total loſs of memory, or oblivion of the paſt, is but too often the conſequent effect of ſuch indolence.

CHAP. VI.

Of SLEEPING *and* WAKING: *their just proportion with regard to age, the constitution of the body, mode of life, and other circumstances.*

SLEEP and wakefulness are nearly in the same relation to each other as exercise and rest. Waking always presupposes a certain degree of activity; all the *natural* functions, digestion, the preparation of the chyle and blood, assimilation, secretion and excretion, are then more vigorously performed, and would soon exhaust their powers, if sleep did not restore to them the beneficial and indispensable supplies.

Sleep is therefore necessary to existence and health, and it is an improper and fruitless attempt, to deprive ourselves, by an ill-directed activity, of the requisite portion of this refreshment; for Nature will maintain her rights, in spite of our efforts to subvert them: and both body and mind suffer, without attaining any real advantage from an extravagant watchfulness.

Before I proceed to inquire into the consequences arising from either too much or too little sleep, it will be useful to premise a concise theory, or the physiology of this suspension of the mental powers.

When the body is fatigued, when the senses, together with the voluntary motions of the muscles, have been for some time active, we stand in need of the alternation of rest,

which is obtained by sleep. During a sound sleep, the senses, and the voluntary muscular motions, are not exercised; but the *vital* functions, such as respiration, and the circulation of the blood, as well as most of the natural functions aforementioned, are regularly though more slowly performed. During sleep, therefore, the motion of the heart and the blood-vessels, even the action of the brain and the nervous system, as likewise the peristaltic or vermicular motion of the stomach and the intestines, and the secretion of the fluids, are performed in an uniform and steady manner. Previous to sleep, we perceive a languor of the senses, and of the muscles which are subject to our will, and of those also which keep the body in an erect posture; the head inclines downwards, the upper eye-lid and the lower jaw-bone likewise sink, the venous blood accumulates towards the heart, and compels us to yawn, in order to facilitate the transition of the blood into the lungs, by the deep breathing which takes place: finally, the brain itself, as the organ of the mind, appears to be fatigued; hence our ideas become irregular, and there arises a kind of faint imbecility of the understanding. That the motions of the heart are stronger during sleep, and that perspiration is more active, must be ascribed to the warmth of the bed-clothes, by which the insensible perspiration softens and relaxes the skin. But a person, who sleeps in his usual dress, will feel chilly; and those animals that sleep long, as the hedge-hog, the murmur-deer

(*Marmota Alpina*, L.) suffer an extraordinary degree of cold.

As the senses are inactive during sleep; as the nervous energy is less exhausted, and its secretion continued, a new supply of it is collected, and the organs of sense, as well as the muscles, receive additional vigour. This occasions us to awake, particularly if roused by any stimulus. While we are asleep, the nutritive particles can more easily attach themselves to the fibres, and fat also is more readily generated, from the retarded circulation of the blood. After we have slept sufficiently, we are apt, on awaking, to stretch the limbs and joints of the body, and sometimes to yawn: the latter, with an instinctive desire of promoting the circulation of blood through the lungs, which was retarded during sleep; the former, namely stretching, in order to assist the extensor muscles, which, by the flexion of the limbs in sleep, had been more extended, and in order to expand again the flexor muscles, that had been moderately contracted.

The proximate cause of sleep appears to be an impeded motion of the nervous fluid in the brain. This motion is produced by a kind of collapse of the subtle insertions of the nerves, as well as by a mechanical compression of them. Hence we can explain, how things so totally opposite are able to produce sleep, when they either exhaust or compress the tubes of the nerves. Of the former kind is every violent and fatiguing species of labour, a considerable loss of blood, perspiration

increaſed by external heat, and every thing that withdraws the blood from the head; for inſtance, warm baths of the lower extremities, a ſtomach filled with much food, &c. Of the latter kind of incitements to ſleep, namely, thoſe that act by compreſſion, is every mechanical preſſure on the brain, whether it proceed from water accumulated in its ventricles, from a local depreſſion or fracture of the cranium, or from extravaſated blood:—in like manner, the impeded regreſs of the blood from the brain, or the increaſed acceſs of it to that organ, may effect ſuch a preſſure, by diſtending the blood-veſſels, as is the caſe in uſing narcotics, or wine and other ſpirituous liquors; and, laſtly, an intenſe degree of cold, as well as the ſtate of an approaching apoplexy. Sleep is promoted by tranquillity of mind; by the abſence of every ſtimulus to the body; by ſilence and darkneſs around us; by a complete reſt of the ſenſes; by gently and uniformly affecting one of the ſenſes, for inſtance, by muſic or reading; and, laſtly, by a gentle external motion of the whole body, as by rocking or ſailing. On the other hand, every painful ſenſation, a great noiſe, a bright light, ſtrong exertions of mental powers, and particularly violent paſſions, are calculated to prevent ſleep. Thus likewiſe ſleep may be impeded by hot, ſpicy, and other kinds of drink, which are ſaid to occaſion a more ſpeedy ſecretion of the nervous fluid.

Dreams are vagaries of the imagination, and in moſt inſtances proceed from external ſen-

ſations. They take place only, when our ſleep is unſound, in which caſe the brain and nervous ſyſtem are capable of performing the motions above deſcribed. We ſeldom dream during the firſt hours of ſleep; perhaps, becauſe the nervous fluid is then too much exhauſted; but dreams rather occur towards the morning, when this fluid has been, in ſome meaſure, reſtored. Every thing capable of interrupting the tranquillity of mind and body, may produce dreams. Such are the various kinds of grief and ſorrow, exertions of the mind, affections and paſſions, crude and undigeſted food, a hard and inconvenient poſture of the body. Thoſe ideas which have lately occupied our mind, or made a lively impreſſion upon us, generally conſtitute the principal ſubject of a dream, and more or leſs employ our imagination, when we are aſleep. Animals are likewiſe apt to dream, but ſeldom; and even men living temperately, and enjoying a perfect ſtate of health, are ſeldom diſturbed with this play of the fancy. Nay, there are examples of lively and ſpirited perſons who never dream. The great phyſiologiſt, HALLER, conſiders dreaming as a ſymptom of diſeaſe, or as a ſtimulating cauſe, by which the perfect tranquillity of the *ſenſorium* is interrupted. Hence, that ſleep is the moſt refreſhing, which is undiſturbed by dreams, or, at leaſt, when we have no clear recollection of them.

I have before obſerved, that moſt of our dreams are ſports of fancy, and derive their origin chiefly from external impreſſions: al-

moſt every thing we ſee and hear, when awake, leads our imagination to collateral notions or repreſentations, which, in a manner ſpontaneouſly, and without the leaſt effort, aſſociate with external ſenſations. The place where a perſon whom we love formerly reſided, a dreſs ſimilar to that which we have ſeen her wear, the objects that employed her attention, no ſooner catch our eye, than ſhe immediately occupies our mind. And, though theſe images, aſſociating with external ſenſations, do not arrive at complete conſciouſneſs, within the power of imagination, yet even in their latent ſtate they may become very ſtrong and permanent. I have been informed, for inſtance, of a young man, who was attacked with convulſions, every time he heard the name of *Jeſus* repeated; owing, it ſeems, to the circumſtance of his mother having once invoked the name of Jeſus in a terrific voice and manner, when ſhe, as well as the boy, were much frightened by a tremendous peal of thunder. But this is only an indirect demonſtration of the exiſtence of a faculty, which is very active in dreams, and which may be aptly called the *ſubreaſoning faculty*, or the power of abſtracting ſimilarities. The concluſions, thus formed, are more frequent and active, than in the waking ſtate; becauſe they are ſeldom controlled by the reflections of reaſon. I ſhall make uſe of one illuſtration only.

Very frequently we find, that in a dream a ſeries of repreſentations is ſuddenly interrupted, and another ſeries of a very different kind

occupies its place. This happens, as soon as an idea associates itself; which, from whatever cause, is more interesting than that immediately preceding. It then becomes the prevailing one, and determines the association. Yet by this, too, the imagination is frequently re-conducted to the former series. The interruption in the course of the preceding occurrences is remarked, and the power of abstracting similarities is in search of the cause of this irregularity. Hence, in such cases, there usually happens some unfortunate event or other, which occasions the interruption of the story. The representing power may suddenly again conduct us to another series of ideas, and thus the imagination may be led by the subreasoning power before defined, from one scene to another. Of this kind, for instance, is the following remarkable dream, as related and explained in the words of Prof. Maass, of *Halle*: "I dreamed once," says he, "that the Pope visited me. He commanded me to open my desk, and he carefully examined all the papers it contained. While he was thus employed, a very sparkling diamond fell out of his triple crown into my desk, of which, however, neither of us took any notice. As soon as the Pope had withdrawn, I retired to bed, but was soon obliged to rise, on account of a thick smoke, the cause of which I had yet to learn. Upon examination, I discovered, that the diamond had set fire to the papers in my desk, and burnt them to ashes."

This dream deſerves a ſhort analyſis, on account of the peculiar circumſtances which occaſioned it. "On the preceding evening," ſays Prof. Maaſs, "I was viſited by a friend, with whom I had a lively converſation upon Joſeph II.'s ſuppreſſion of monaſteries and convents. With this idea, though I did not become conſcious of it in the dream, was aſſociated the viſit which the Pope publickly paid the Emperor Joſeph at Vienna, in conſequence of the meaſures taken againſt the clergy; and with this again was combined, however faintly, the repreſentation of the viſit, which had been paid me by my friend. Theſe two events were, by the ſubreaſoning faculty, compounded into one, according to the eſtabliſhed rule—that things which agree in their parts, do alſo correſpond as to the whole;—hence the Pope's viſit was changed into a viſit made to me. The ſubreaſoning faculty, then, in order to account for this extraordinary viſit, fixed upon that which was the moſt important object in my room, namely, the deſk, or rather the papers locked up in it. That a diamond fell out of the triple crown, was a collateral aſſociation, which was owing merely to the repreſentation of the deſk. Some days before, when opening the deſk, I had broken the glaſs of my watch, which I held in my hand, ſo that the glaſs fell among the papers. Hence no farther attention was paid to the diamond, being a repreſentation of a collateral ſeries of things. But afterwards, the repreſentation of the ſparkling ſtone was again excited, and

became the prevailing idea; hence it determined the ſucceeding aſſociation. On account of its ſimilarity, it excited the repreſentation of fire, and was indeed confounded with it. Hence aroſe fire and ſmoke. But, in the event, the writings only were burnt, not the deſk itſelf; to which, being of comparatively leſs value, the attention was not at all directed."

It is farther undeniable, that there are in the human mind certain obſcure repreſentations, and that it is of great advantage to be convinced of the reality of theſe images, if deſirous of perceiving the connexion ſubſiſting among the operations of the imagination. Of the numerous phenomena, founded on obſcure ideas, and which conſequently prove their exiſtence, I ſhall only remark the following. It is a well known fact, that many dreams originate in the impreſſions made on the body during ſleep; that they conſiſt of analogous images, or ſuch as are aſſociated with ſenſations that would ariſe from theſe impreſſions during a waking ſtate. Hence, for inſtance, if our legs are placed in a perpendicular poſture, we are often terrified by a dream, that implies the imminent danger of falling from a ſteep rock or precipice. The ſoul muſt repreſent to itſelf theſe external impreſſions in a lively manner, otherwiſe no ideal picture could be thus excited. But, as we do not become at all conſcious of them, they are but faintly and obſcurely repreſented.

If we make a reſolution of riſing earlier in the morning than uſual; and if we imprint-

this determination on our mind, immediately before going to bed, we are almoſt certain to ſucceed. Now it is ſelf-evident, that this ſucceſs cannot be aſcribed to the efforts of the body, but altogether to the mind; which probably during ſleep perceives and computes the duration of time, ſo that it makes an impreſſion on the body, whereby we are enabled to awake at an appointed hour. Yet all this takes place, without our conſciouſneſs, and the repreſentations remain obſcure.

Many productions of art are ſo complicated, that a variety of ſimple conceptions are requiſite to lay the foundation of them; yet the artiſt is almoſt entirely unconſcious of theſe individual notions. Thus, a perſon performs a piece of muſic, without being obliged to reflect, in a conſcious manner, on the ſignification of the notes, their value, and the order of the fingers he muſt obſerve; nay even without clearly diſtinguiſhing the ſtrings of the harp, or the keys of the harpſichord.—We cannot attribute this to the mechaniſm of the body, which might gradually accuſtom itſelf to the accurate placing of the fingers.—This could be applied only where we play a piece of muſic, frequently practiſed; but it is totally inapplicable to a new piece, which is played by the profeſſor with equal facility, though he has never ſeen it before. In the latter caſe, there muſt neceſſarily ariſe an ideal repreſentation, or an act of judgment, previous to every motion of the fingers.

Theſe arguments, I hope, ſufficiently evince the occurrence of ſuch obſcure notions and

repreſentations, as lay the ground-work of all our dreams. That among the thouſands and millions of fanciful and ſuppoſed ominous dreams, ſome are occaſionally realized, is not a matter of aſtoniſhment; but many people, particularly the victims of the lottery, too frequently find reaſon to regret, that theſe omens are not always to be depended upon; if thoſe deluded viſionaries would permit themſelves to reaſon, and to calculate, they would diſcover, that there are as many chances againſt their dream being realized, as there are againſt their ticket turning up a twenty thouſand pounds prize.

Before I quit this ſubject, I ſhall relate an extraordinary dream of the celebrated Italian, GALILEO. When this great man, at a very advanced age, had loſt the uſe of his eyes, he was once conducted in his walks over a beautiful plain, by his pupil, TORICELLI. "Once," ſaid the aged ſage, "my eyes permitted me to enjoy the charms of theſe fields. But now, ſince their light is extinguiſhed, theſe pleaſures are loſt to me for ever. Heaven juſtly inflicts the puniſhment which was predicted to me many years ago. When in priſon, and impatiently languiſhing for liberty, I began to be diſcontented with the ways of Providence; COPERNICUS appeared to me in a dream; his celeſtial ſpirit conducted me over luminous ſtars, and, in a threatening voice, reprehended me for having murmured againſt him, at whoſe *fiat* all theſe worlds had proceeded from nothing. "A time ſhall come," ſaid he, "when thine eyes ſhall refuſe to aſſiſt thee in contemplating theſe wonders."

After this long, though I hope not uninteresting digression, I proceed to state the consequences arising from too much or too little sleep.

To continue in a waking state, beyond a proper time, consumes the vital spirits, disorganizes the nerves, and causes so many uneasy sensations, that a considerable while must elapse, before we can fall asleep, namely, until their greatest violence has abated. The fluids of the body become acrid, the fat is consumed, and there arises at length an inclination to vertigo, violent head-ach, anxiety, actions without connexion, without design, and without consistency. Those who indulge themselves in much sleep, are seldom liable to very strong passions. Persons, on the contrary, who sleep too little, frequently contract a violent and vindictive temper. Long-continued wakefulness is capable of changing the temper and disposition of mind of the most mild and gentle; of affecting a complete alteration of their features, and, at length, of occasioning the most singular whims, the strangest deviations in the power of imagination, and, in the end, absolute infanity.

Excess of sleep, however, is not less prejudicial. The whole body sinks gradually under a complete state of inactivity, the solid parts become relaxed, the blood circulates slowly, and remains particularly long in the head: perspiration is disordered, the fluids are incrassated, the body increases in fat and thick humours, and is rendered incapable of being the medium of mental exertion, the

memory is enfeebled, and the unhappy ſleeper falls into a thoughtleſs lethargic ſtate, by which his ſenſibility is, in a great meaſure, deſtroyed.

Perſons troubled with hypochondriaſis and hyſterics do themſelves much injury by ſleeping too long, eſpecially in the morning, when the body is much weakened by its too long continuance in a heated and unwholeſome atmoſphere. To ſuch individuals, it is alſo dangerous to remain for a length of time in a ſtate of inactivity. Indeed, exceſs in ſleeping is detrimental to the muſcular powers of every perſon; to the phlegmatic, eſpecially, whoſe fluids will thus ſoon be univerſally corrupted; and ſanguine temperaments thereby acquire a ſuperabundance of blood. The melancholy, whoſe blood circulates ſlowly, muſt ſuffer inconveniencies in their ſecretions and excretions by this indulgence; and we generally find, that long ſleepers are afflicted with coſtiveneſs and obſtructions.—Early riſing, and timely going to bed, may alone render them more healthy and vigorous.

If it can be advantageous to any deſcription of perſons, to ſleep beyond the uſual portion of time, it is to the choleric. To ſleep immediately after ſupper, is apt to occaſion the night-mare, or a ſtagnation of the blood, which, by its preſſure, produces the ſenſation or idea of this troubleſome bed-fellow. It is principally the nervous, the debilitated, and thoſe of an impaired digeſtion, who are viſited by ſuch terrifying dreams.

The proper duration of sleep, in youth and adults, is usually settled at six or seven hours; in children and the aged, from eight to nine hours. Yet the individual deviations in the constitution of the body, and its various wants, scarcely admit of any accurate rules. The more bodily weakness we feel, the more we may indulge in sleep, provided it be refreshing. If people in a state of health are perfectly cheerful in mind and body, when they first awake, this is the most certain criterion, that they have slept sufficiently.

We should, however, be on our guard, not to confound the natural wants of the body with a blameable custom. For most persons habitually sleep too much, or remain longer in bed than they ought. The principal cause of this destructive custom undoubtedly arises in infancy; when children are permitted to sleep in very soft and heating beds, and encouraged to lie longer than is proper, from a mistaken notion that they cannot sleep too much. From this injudicious treatment, they cannot attain a solid texture of the body, and a foundation is laid for many subsequent diseases. The rickets, so very common in many families, in the present age, often originate in such indulgencies, since the general relaxation of the body, and the tendency to profuse perspiration, is thus promoted in an extraordinary degree. At the age of puberty, this effeminacy of the body, and the inclination to sleep, together with the pleasant sensation, which a soft and warm bed affords in a waking state, are certainly the first and most fre-

quent causes of a vice, that might be effectually prevented by early rising.

The custom of sleeping long, when continued to the state of manhood, becomes so habitual that it cannot be relinquished without great struggles, and a firm resolution. Those, then, who are not possessed of this firmness, instead of attaining a strong constitution, will acquire a phlegmatic, relaxed, and cold temperament, which will render them irresolute, and incapable of energetic efforts; and from which the mind, by degrees, becomes as indifferent towards every object, as the body is unfit for muscular exertion.—Hence, to listen to the voice of Nature, in this respect, will contribute more to our happiness, than to shorten our repose by many of the usual but violent means of excitement, when the body is in want of rest.

To children, at a very early period of life, no limits of sleep can be prescribed; but, after the sixth or seventh year of age, some regulations become necessary, to habituate them to a certain regularity. The just proportion of sleep can be ascertained only, by their more or less lively temperament, by their employments, exercise and amusements through the day, and according to the more or less healthy state of their bodies. In pursuing this measure, however, we must not attempt to awaken children from their sleep, in a violent or terrifying manner, which is frequently done, and is extremely pernicious.

In great disquietude of mind, and after violent passions, sleep is the more necessary, as

these agitate and exhaust the frame, more than the most fatiguing bodily labour. Hence, many persons never sleep so sound, as when they are afflicted with grief and sorrow. A fretful and peevish temper, as well as a fit of the hypochondriasis, cannot be more effectually relieved, than by a short sleep. Frequently, after a sleep, of a few minutes only, we awake refreshed, we can reflect on our difficulties with a calm mind, and again reconcile ourselves to the troubles of life. In such situations, though we should not be able to sleep, even a quiet posture of the body, with the eyes closed, is of some advantage.

There is scarcely any misfortune so great, that it cannot be relieved or alleviated by sleep; as, on the contrary, we should inevitably sink under its pressure, if this beneficent balm did not support us. Yet, frequently too, uneasiness of mind, by its continual stimulus on the *censorium*, prevents all sleep: hence the unquiet repose and even whole sleepless nights of those, whose heads are filled with cares or important schemes. As mental labours exhaust our strength more than those of the body, literary men, who employ themselves in long and profound reflections, require more sleep than others. Though some persons, whose body and mind are equally indolent, have a greater inclination to sleep, than the lively and laborious, yet it is not so beneficial to them; since they are destitute of the essential requisites to health, namely, activity and vigour.

The moſt healthy, and thoſe who lead the moſt regular lives, frequently have an uneaſy and very ſhort ſleep: they alſo require leſs reſt at one time than another. He who digeſts eaſily, ſtands leſs in need of ſleep than others. After taking aliment difficult of digeſtion, Nature herſelf invites to the enjoyment of reſt, and to ſleep in proportion to the time which is required for the concoction and aſſimilation of food.—Exceſſive evacuations of whatever kind, as well as intoxication by ſtrong liquors, render additional ſleep neceſſary. In winter and ſummer, we require ſomewhat more time for ſleep than in ſpring and autumn; becauſe the vital ſpirits are leſs exhauſted in the latter ſeaſons, and the maſs of the blood circulates more uniformly, than in the cold of winter or heat of ſummer, when it is either too much retarded, or accelerated.

It is very improper to ſit up too late in the long winter evenings, whether at the deſk or the bottle, either of which is then more hurtful than in ſummer, becauſe the want of ſleep is greater. Thoſe who wiſh to ſpend the winter in good health, and uſeful labour, ſhould retire to bed at eight o'clock in the evening, and riſe at three or four o'clock in the morning. A winter morning, indeed, is not very charming, but the evening is *naturally* ſtill leſs ſo; and there is no doubt, that we can perform every kind of work, with more alacrity and ſucceſs, in the early part of the day than at night; and that our eyes would likewiſe be benefited by this regula-

tion, after ſleep has enabled them to undertake any taſk in the morning; but they are fatigued at night, from the exertions of a whole day.

Every ſtimulus may interrupt ſleep, or at leaſt render it uneaſy, and often occaſion dreams, the cauſe of which is generally owing to an irritation in the ſtomach, or in the inteſtinal canal. Dreams are, as it were, a middle ſtate between ſleeping and waking, and generally indicate ſome defect in the body, unleſs they give repreſentations which originate in the occurrences of the preceding day.

An uneaſy ſleep, which is obvious from ſtarting up, or ſpeaking in it, and from a frequent change of the poſture in bed, is at no time a good ſymptom; it is as frequently a forerunner, as it is the effect of diſeaſe, and may be owing to the following cauſes:

1. Emotions of the mind and violent paſſions always diſorder the vital ſpirits;—at one time they increaſe, at another diminiſh, and ſometimes altogether check their influence, the conſequences of which extend to the whole circulation of the blood. Sorrows and cares produce a ſimilar effect. Hence the nocturnal couch is a very improper place to proſecute moral reſearches, or to recollect what we have done, ſpoken, and thought through the day.—To read intereſting letters, received late in the evening, uſually too occaſions an unquiet ſleep.

2. A bad ſtate of digeſtion, and eſpecially hard or corrupted food, on account of the connexion of the brain with the ſtomach.

3. A repelled perſpiration, if we have not covered ourſelves conformably to the climate, ſeaſon, and weather.—In this caſe, a current of air is ſtill more hurtful than intenſe cold.

4. An apartment or bed to which we are not accuſtomed may alſo occaſion an uncomfortable ſleep, as travellers frequently experience. It is therefore an eſſential part of a good and healthful education, to accuſtom children to ſleep alternately upon different, and harder or ſofter couches, in various parts of the houſe, more or leſs temperate, which conſequently enables them to ſleep comfortably in a ſimple but clean bed, in whatever place or ſituation they may find it.

Debilitated perſons injure themſelves much by ſleeping during the day, againſt the order of Nature, and keeping awake the greater part of the night. Day-light is beſt adapted to active employments; and the gloom and ſtillneſs of the night to repoſe. The evening-air which we inhale ſoon after ſun-ſet, and night-air in general, which is vitiated in the country by the exhalations of plants, is very detrimental to the delicate. The forced watchfulneſs of thoſe who apply themſelves in the night to mental purſuits, is exceedingly prejudicial. A couple of hours ſleep before midnight is, according to old experience, more refreſhing than double the quantity after that period.

The queſtion, whether to *ſleep after dinner* be advifable, muſt be decided by a variety of concurrent circumſtances; cuſtom, bodily conſtitution, age, climate, and the like.

In a weak and flow ſtate of digeſtion, after having taken hard or ſolid food, we may indulge ourſelves in a ſhort ſleep, rather than after a meal conſiſting of ſuch nouriſhment, as by its nature is eaſily concocted. But debilitated young people eſpecially ſhould not ſleep too much, though their weakneſs incline them to it; for the more they indulge in it, the greater will be their ſubſequent languor and relaxation.

Individuals of a vigorous and quick concoction may undertake gentle, but not violent exerciſe, immediately after meals, if they have eaten food that is eaſily digeſtible, and which requires little aſſiſtance, but that of the ſtomach and its fluids. And even ſuch perſons, if they have made uſe of proviſions difficult to be concocted, ought to remain quiet after dinner, and may occaſionally allow themſelves half an hour's ſleep, in order to ſupport digeſtion.

To reſt a little after dinner, is farther uſeful to dry and emaciated perſons, to the aged, and perſons of an iraſcible diſpoſition; to thoſe who have ſpent the preceding night uneaſily and ſleepleſs, or have been otherwiſe fatigued, in order to reſtore regularity in the inſenſible perſpiration; but in this caſe the body muſt be well covered, that it may not be expoſed to cold. Such as are fond of ſleeping at any time of the day, are uſually more indolent and heavy after it than before. A ſleep after dinner ought never to exceed one hour; and it is alſo much better ſitting than lying horizontally; for, in the latter caſe, we

are more subject to fluctuations of the blood towards the head, and consequently to headach.

Much depends upon the manner of lying in bed, and on the posture to which we accustom ourselves. To lie on the back, with the arms over the head, prevents the circulation of the blood to the arms, and is not unfrequently productive of serious consequences. It is equally pernicious to lie in a crooked posture, or with the breast very low and bent inwards; for the intestines are thereby compressed and obstructed in their motions, and the blood cannot easily circulate downwards; whence may arise giddiness and even apoplexy. Lying on the back is equally improper, and produces frightful dreams, together with many other inconveniencies; the reverse posture is likewise noxious, as the stomach is thus violently oppressed, the free respiration much impeded, and the whole circulation of the fluids in the chest and abdomen wantonly prevented, to the great injury of health.

The most proper posture, then, is on one side, with the body straight, the limbs slightly bent (not stretched, because they ought to rest) so that the body may lie somewhat higher than the legs. When the head is laid high, a short sleep is more refreshing than a longer one when it is reclined too low. To healthy people it is a matter of no consequence on which side they lie, and they may safely, in this respect, follow their own choice. Some dietetical observers allege, that it is better to lie in the evening on the right, and in the

morning on the left ſide; that in the evening the food may more readily leave the ſtomach, and that afterwards this organ may be better warmed by the liver.

In the evening we ſhould eat light food only, and that ſparingly, wait for its digeſtion, and conſequently not lie down till two or three hours after ſupper. The mind ought to be kept quiet and cheerful, previous to going to reſt: we ſhould then, as much as poſſible, avoid gloomy thoughts, which require reflection and exertion. It is therefore a pernicious and dangerous practice to read ourſelves aſleep in bed. We would do much better, to exerciſe ourſelves a little before bed-time, by walking up and down the room.

Sleep without dreams, of whatever nature they may be, is more healthful than when attended with theſe fancies. Yet dreams of an agreeable kind promote the free circulation of the blood, the better concoction of food, and a due ſtate of perſpiration. The contrary takes place in unpleaſant dreams, which excite anxiety, terror, grief, fear, and the like. In the latter caſe, they are of themſelves ſymptoms of irregularity in the ſyſtem, of an approaching diſorder, or of an improper poſture of the body. The functions of the body before mentioned are impeded by ſuch dreams; and the vital ſpirits, which ought to be reſtored and cheriſhed, are again diſſipated by violent emotions, inſomuch that the body and the mind continue unrefreſhed.

In order to preſerve the body warm, we make uſe of feather-beds and covers:—in

ſummer, at leaſt, we ought to ſleep upon mattreſſes. It is a moſt eſſential requiſite to every perſon, who wiſhes to lead an agreeable, active, and uſeful life, to provide himſelf in time with a *proper* couch. To inſure all the advantages which may be derived from this quarter, nothing is better than a mattreſs filled with horſe-hair, or, if cheapneſs be an object, with dry moſs, at leaſt ſix inches thick. Several of ſuch mattreſſes may be placed one above another; the bolſter ought to be well ſtuffed and elaſtic; in winter with feathers, and during the ſummer with horſe-hair, more or leſs high, according to circumſtances, but always ſo that the head may lie conſiderably more elevated than the breaſt and the reſt of the body.

The cover ſhould never be tucked in too cloſely, that the acceſs of external air may not be altogether excluded. If we make uſe of a bedſtead or a ſofa provided with ſteel ſprings, one of the mattreſſes above deſcribed, with a ſimilar bolſter, and the light cover of a double blanket, will be found ſufficient. Theſe beds are not only the moſt convenient for early riſers, but alſo the moſt conducive to health. The higher claſſes of ſociety in Ireland appear to be ſo well convinced of the ſalubrity of this mode of ſleeping, that their children, inſtead of being placed on enervating feather-beds, are habituated to ſleep upon bags filled with cut ſtraw, with blankets laid over the bags for ſoftneſs, and but ſlightly covered. I underſtand, that this praiſe-worthy practice is every day becoming more general.

Indeed, there is no doubt that the muſcles and nerves are more braced by a proper elaſtic couch, than either by the moſt exquiſite down of Norway, or the moſt powerful tonic or ſtrengthening remedies taken internally. Yet theſe remarks are applicable only to the healthy ſtate of the body, when Nature requires no additional aid or precaution, in managing the organs of perſpiration.—Every bed ought to be ſo regulated, that it may ſlope down imperceptibly towards the feet; and if the particulars before ſtated be attended to, a healthy perſon will never ſleep too long: he will generally awake in ſix hours, feel himſelf refreſhed, riſe with cheerfulneſs, and be fit to undertake any exertions, either of body or mind.

What has been remarked in a former Chapter on Dreſs, and the advantages derived from covering the ſkin with animal wool, particularly in enervated and infirm people, is likewiſe applicable here, with reſpect to the dreſs, and the immediate covering of the ſkin, when in bed. Though we uſually undreſs ourſelves as far as the ſhirt, partly for the ſake of cleanlineſs, and partly with the view of relieving the body from every preſſure and incumbrance, and of promoting a free circulation of the blood; yet we ſhould be cautious, leſt we materially hurt ourſelves by a ſudden expoſure to the air, when undreſſing, eſpecially after the hot and ſultry days of ſummer. A long and commodious night-gown of flannel would be a proper night dreſs; eſpecially for thoſe who retire to their bed immediately

after the bath, in order to preſerve a gentle degree of perſpiration.

The head ſhould not be covered with a warm flannel or worſted night-cap, as it were to make it a vapour-bath; the thinneſt cotton or linen cap being fully ſufficient. The conſequences reſulting from the pernicious practice of keeping the head too warm, have been explained on a former occaſion. The ſhirt-collar ſhould be looſe, the wriſtbands open; and if from a bad habit we have been accuſtomed to wear neckcloths during ſleep, they ſhould be tied as looſely as poſſible. Perſons who are naturally chilly in the lower extremities, or are liable to pains of the ſtomach and abdomen, would do well to ſleep in woollen ſtockings, but not in the ſame which they have worn through the day.

The *feather-beds*, in which we uſually ſleep, are certainly hurtful in many diſeaſes, ſome of which they may even produce. For they abſorb or imbibe the perſpired vapours thrown out of the body, without our being able to cleanſe them of theſe impurities, which are again re-abſorbed and re-conducted through the pores, to the great injury of health. For this reaſon, mattreſſes filled with horſe-hair, or moſs, are in every reſpect preferable. But, as many individuals have not ſufficient reſolution to uſe theſe, or are apprehenſive of the conſequences attending a ſudden change, they may at leaſt cauſe their feather-beds to be frequently and carefully ſhaken, aired in the ſun, and provided with a new covering. For the ſame reaſon, the bed ought not to be made

immediately after rising, as is generally practised; but the clothes should be taken off, spread out, and not laid on the bed, until the time of going to rest draws near. Farther, it is highly improper to sleep in beds overloaded with clothes: they heat the blood more than is consistent with health, and produce an immoderate and enervating perspiration, which still more weakens the organs already relaxed by sleep.

The custom of sleeping with the curtains drawn close, is pernicious to health, because the copious exhalations which then take place, cannot be properly dissipated, and are consequently again absorbed. It is also imprudent to hide the head almost entirely under the bed-clothes. Persons who cannot sleep without curtains, should tuck up the lower ends of them, or place them over chairs, so that they may not lie close to the bed, but admit a more free access of air; that side alone, which is next the wall, ought to be entirely covered with the curtain.

For similar reasons, the large common sleeping halls, or wards in public schools, as well as in hospitals, are extremely prejudicial to health; though they may be necessary evils, and cannot be easily remedied in the great seminaries of education. Neither the most healthy situation, with high, lofty, and spacious apartments; nor the daily practice of airing and cleaning them, are sufficient to counteract the bad effects arising from this baneful custom of crowding so many persons together to breathe in a common and confined atmosphere.

From these considerations, as well as in many other respects, the sleeping together in one bed, whether children or adults, is at best a disgusting and immoral custom; besides the positive disadvantages it has with respect to health. Unless poverty or necessity render this custom unavoidable, it ought not to be practised, either among married or other persons, and still less among children. It has been remarked, even in the domestic economy of barbarous nations, that, in general, every individual has a separate couch.

The old custom of warming the bed also deserves to be condemned; as it has a direct tendency to produce weakness and debility. This will be still more dangerous, if it be done with a charcoal fire, which, by its poisonous vapours, may prove very pernicious. A person who is accustomed to sleep in a cold bed, will not feel much inconvenience in the severest cold; for, after being a short time in bed, the natural warmth of the body will overcome it: as, on the contrary, those who sleep in a warmed bed, will be the more liable to feel cold, as soon as this artificial heat is dissipated.

If it can be avoided, the bed-room ought not to be on the ground floor, nor towards the North. Many people prefer this situation in summer, on account of the cool air; they should, however, consider that, in such an apartment, the morning as well as the night-air, is damp and unwholesome. A bed-chamber ought to be exposed to the early rays of the sun, which awake man in a state of health

at a proper time, and enliven, ſtrengthen, and incite him to leave the bed, after having been refreſhed by reſt. It is, farther, more adviſable to endure a moderate degree of heat, which may be modified at pleaſure, by various means, than to inhabit damp and low-ſituated apartments, from which the moiſture cannot be eaſily dried up in ſummer.

A ſpacious and lofty room ſhould always be choſen for a bed-chamber; for ſmall cloſets and, above all, concealed beds are extremely objectionable.—The windows ſhould never be left open at night; and as damp rooms are very prejudicial to health, we ought to pay particular attention, that the bed may not be placed near a damp wall. It is in every caſe preferable to place the bed ſo, that all the ſides of it ſtand free. This method of placing the bedſtead, in or about the middle of the room, has another advantage which, with timorous perſons, is perhaps of importance. It it well known, that a flaſh of lightning, if it accidentally enter through a window, will take its direction along the walls, and not touch any thing placed in the middle of a room.

Laſtly, no candle or ruſh-light ſhould be kept burning during the night in a bed-room; for it not only vitiates the air in a very conſiderable degree, but it diſturbs and prevents the reſt of thoſe whoſe ſleep is uneaſy, particularly the aged. In a dark apartment, ſleep generally comes without much invitation;

as, on the other hand, the light of a candle ſtimulates the brain, conſequently the whole nervous ſyſtem ; and the approaching comforter, whoſe arrival we ſo fondly wiſh, is thereby prevented, or eaſily interrupted, and baniſhed to calmer regions.

END OF THE FIRST VOLUME.

ADVERTISEMENT TO THE FIRST EDITION.

THESE Lectures, with the exception of the Eighth and Ninth Chapters, were delivered laſt winter* at Bath, and in the ſpring at Briſtol, to numerous and reſpectable audiences. The Author had no intention, at that time, to publiſh them; but as he found no Work, in the Engliſh language, comprehending ſuch a ſyſtematic view of the various and important objects which came more immediately under his conſideration, and conceived that the diſſemination of the rules ſelected by him might be generally uſeful, he was induced to alter his reſolution, and ſubmit them to the candour of the Public.

To many Engliſh and German writers he muſt acknowledge his obligations, in the compoſition of his Work. Among the former, he has occaſionally availed himſelf of the excellent Writings of PRIESTLEY, on the ſubject of '*Air and Weather*;' of FOTHERGILL and VAUGHAN, on '*Dreſs*;' and of ARMSTRONG, CULLEN, and FALCONER, on '*Food and Drink*.' To Dr. FOTHERGILL alſo, on the ſubject of '*Sleeping and Waking*,' he is much indebted, as well as to Mr. ADAMS's uſeful Treatiſe on the '*Treatment and Preſervation of the Eyes*.'

Beſide the valuable obſervations drawn from all theſe ſources, he has been greatly aſſiſted by the opinions of ſeveral German writers, viz. INGENHOUZ, HAHNEMANN, HUFELAND, MARCARD, SŒMMERING, UNZER, ZIMMERMANN, and others; having derived conſiderable advantage from the general reſult of their reſpective inquiries on the ſubject of Diet and Regimen.

Although it can ſcarcely be expected that a Work of this nature ſhould be perfect, or free from inaccuracy, the Author has ſpared no pains to render it deſerving of the public favour, and truſts it will be found a domeſtic guide both to families and individuals.

Should the rules and cautions, interſperſed throughout, tend, in the ſmalleſt degree, to increaſe the knowledge of the inquiſitive, diſſuade the unwary from injurious habits, or reſcue the ſenſualiſt from the brink of deſtruction, the exertions of the Author will be amply compenſated.

* In the months of January and February, 1798.

ADVERTISEMENT

TO THE SECOND LONDON EDITION.

THE first Edition of these Lectures having met with a degree of approbation beyond the most sanguine hopes of the Author, he has testified his grateful sense to a discerning Public, not only by correcting and improving every page of the Work, but likewise by enlarging and rendering it as complete as the limits of a single volume would admit.

Many important and useful articles have been added, especially in the Fifth Chapter, "Of Food and Drink." The principal *new subjects* the Reader will, on consulting the Alphabetical Index, find under the terms—*Arrow-root—Artichokes—Asparagus—Barley—Beans—Beet-root—Cow-pox—Consumption—Exercise—Figs—Game—Lobsters—Manna-grass—Metallic Tractors—Millet—Oats—Oil—Olives—Parsnips—Rice—Sago—Salsafy—Salt—Skirret-root—Small-pox—Tamarinds—Vinegar*, &c. &c.

The quotations translated from Dr. Mead's "Medical Precepts," and inserted in the conclusion of these Lectures, will be deemed interesting by every reflecting mind.

To this edition the Author has added a "*Postscript*," to which he refers the Reader with respect to the limited design of the present book, and the practical tendency of a new work, "On the Dietetic Treatment and Cure of Diseases;" which will contain the farther application of these Lectures in a diseased state of the body.

With this view, he has thought proper to subjoin a series of *Queries*, addressed to those patients who are anxious to give an accurate and satisfactory account of their disorder, when consulting medical men, especially if they cannot have the benefit of an interview.